# Northwest Region, Area 4

# Integrated Roadside Vegetation Management Plan

2009

Washington State Department of Transportation
Maintenance and Operations Division

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## *Summary*

This plan explains the Washington State Department of Transportation's (WSDOT) policy and practice for maintenance of roadside vegetation for Maintenance Area 4 within the agency's Northwest Region. This area manages vegetation within approximately 235 miles of state highway corridor in south King and eastern Pierce Counties. Highways in this area carry some of the highest traffic volumes in the state. Major corridors include portions of Interstates 5 and 405. Other limited access corridors include State Routes 18, 167, 518, and a portion of 509. SR 410 east of Enumclaw is referred to as the Mather Memorial Parkway and has been designated as an All American Road. A map of the area is included as **Figure 1** on the following page.

The primary objectives in maintenance of roadside vegetation within the area are in relation to safety of the highway users, preservation of the highway infrastructure, and control of legally designated noxious weeds where they occur on the right of way. Other considerations include protection and preservation of natural environment, preserving and enhancing the natural scenic quality of the roadside, and being a good neighbor to the many adjoining property owners. In all cases, roadside vegetation maintenance activities are planned and conducted in a way that discourages or eliminates unwanted vegetation and promotes desirable vegetation. This is the basic premise of Integrated Vegetation Management (IVM) and the foundation of the program.

This document and associated information management tools serve as the primary reference for maintenance of roadside vegetation in the area. Included is detailed information on locations for planned routine maintenance practices, reoccurring weed infestations, sensitive areas, and other areas with special management considerations. Also included are guidelines and prescriptions for best management practices in dealing with roadside vegetation problems and opportunities. In effect, this plan supports WSDOT's compliance with state law (RCW 17.15) by implementing the principles of Integrated Pest Management for the management of roadside vegetation. It also supports WSDOT's long-range goals for the management of roadsides to:

- Create naturally stable, sustainable plant communities
- Improve effectiveness and efficiency in the control of weeds and unwanted trees and brush
- Reduce maintenance cost and herbicide use over time

This plan is organized around the major categories of roadside vegetation maintenance work. The major categories include: Zone 1 (or pavement edge maintenance), Routine Mowing, Noxious Weed Control, Nuisance Weed Control, Tree and Brush Control, and Special Maintenance Areas.

The management of roadside vegetation is a dynamic process and it is intended that this plan be continuously adapted over time based on input from a variety of sources. An integral component of the plan is a database for recording Integrated Vegetation Management (IVM) treatments for specific vegetation controls and locations, and to record information on follow up evaluation on these treatments. This information will be used to refine planned treatments over time.

WSDOT is also requesting that local public and private entities with an interest in weed control and vegetation management provide input on the plan and cooperate in efforts where appropriate. Copies of the complete draft plan are available online: www.wsdot.wa.gov/maintenance/vegetation/mgmt_plans.htm, hard copies can also be provided upon request. Please contact Gary Ward or Ray Willard with questions or comments:

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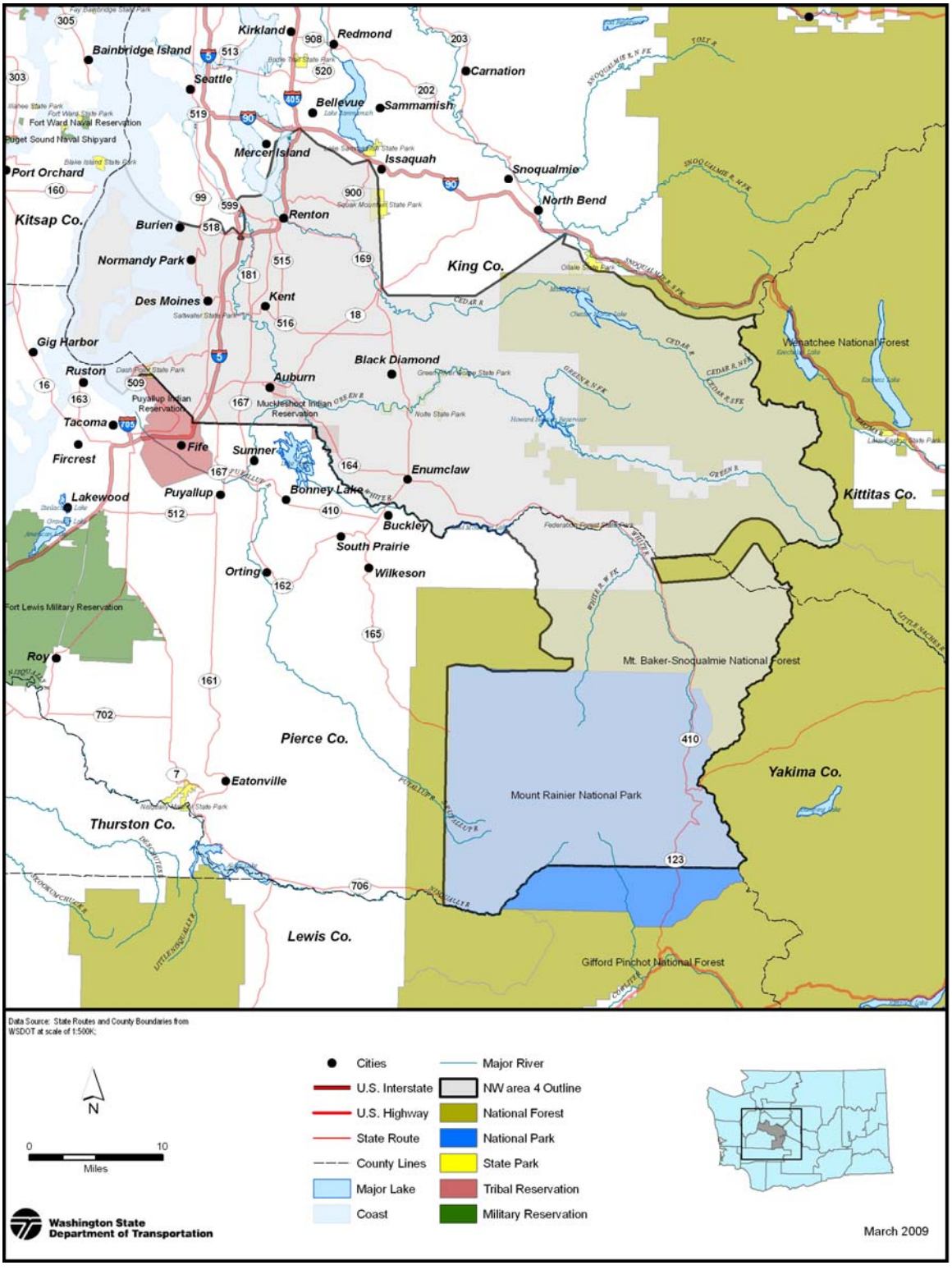



**Northwest Region, Area 4 Map**
Figure 1

## *Roadside Management Considerations*

The primary objectives for maintenance of roadside vegetation are to provide for safe highway operation and to comply with legal regulations for control of noxious weeds and protection of the environment. Overall WSDOT maintenance policy and procedures are defined in Chapter 6 of the WSDOT Maintenance Manual (M51-01, March 2002) www.wsdot.wa.gov/fasc/EngineeringPublications/Manuals/MaintenanceManual.pdf

**Visual Quality**
It is also important to maintain appropriate visual standards in the appearance of the roadside. All maintenance activities should be conducted in a way that minimizes visual impacts such as wide spread "brown-out" from herbicides or shattered limbs from side trimming. Roadsides should look as natural as possible throughout the year. Appropriate visual quality for roadsides throughout the state is defined in the WSDOT Roadside Classification Plan (June 1996) www.wsdot.wa.gov/fasc/EngineeringPublications/Manuals/RCP.pdf

**Operational Zones**
WSDOT roadsides are divided into several zones for the purposes of assigning management objectives, maintenance needs, and thresholds for triggering vegetation maintenance actions. Noxious weed species designated for control by state and county law are controlled throughout all zones. Not all management zones occur along all state highways. In some cases the narrow width of the right-of-way or adjoining land-use, limits the operational zones to Zone 1 and/or a narrow Zone 2 only. Roadside vegetation management zones are illustrated in **Figure 2** below and defined as follows:

> **Zone 1** – A vegetation free gravel shoulder, where needed, is maintained as a one to three-foot wide strip to provide for key maintenance, operational, safety, and pavement and guardrail preservation needs.
>
> **Zone 2** – The operational zone extends from the edge of Zone 1 or the pavement edge to a width necessary to provide for safe errant vehicular recovery, maintain sight distance at corners and intersections, and provide for other operational, safety, and environmental functions.
>
> **Zone 3** – In areas with sufficient right-of-way width, a buffer or transition zone extends from Zone 2 to the right-of-way line or across the median to provide a buffer or transitional area between the highway facility and adjacent land uses. This area is maintained selectively, and to the greatest degree possible as a self-sustaining plant community, to minimize erosion as well as the growth of weeds and undesirable trees and brush. In some urban and suburban settings, additional maintenance is required on fence lines behind Zone 3.

**Roadside Maintenance Activities**
All roadside maintenance activities are to be planned and conducted in a way that discourages or eliminates unwanted vegetation and promotes desirable vegetation. This is the basic premise of Integrated Vegetation Management. In every case it is essential that the results of maintenance activities are evaluated and adjusted as necessary to maximize efficiency and effectiveness. However, in some cases maintenance activities are conducted more consistently on an annual basis, such as maintenance of Zone 1 where required, and routine mowing where specified.

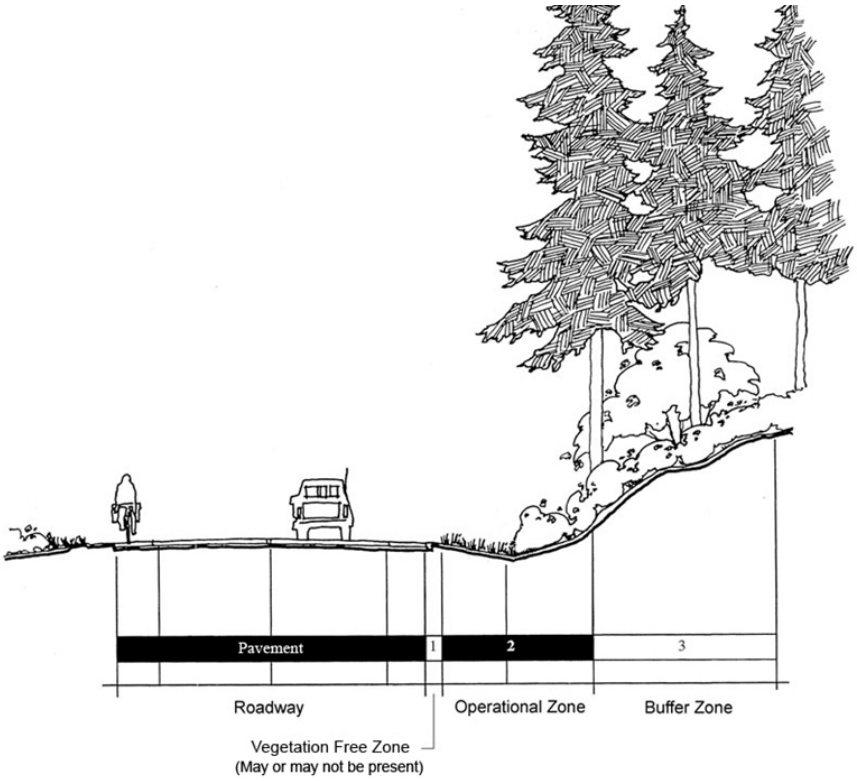
> **Routine Maintenance Activities** – When vegetation maintenance activities are intended to keep the area of roadside being treated in an annually controlled condition, they are considered routine. This is more critical for areas of vegetated roadside near the travel lanes, edge of pavement, and around guardrails. This plan provides prescriptions and gives locations for routine maintenance activities including maintenance of Zone 1 and annual mowing.
>
> **Integrated Vegetation Management Activities** – Although all activities are to be planned and conducted in accordance with the principles of IVM, many vegetation

maintenance activities are intended to target a specific type or types of unwanted plants. By carefully planning and carrying out these target specific activities it is possible over time to establish desirable vegetation, which will prevent the re-infestation of unwanted plants. The process for determining and carrying out IVM actions is illustrated in **Figure 3** below. This plan provides information, locations, and gives prescriptions for selective control of weeds and other unwanted vegetation and the promotion and establishment of desirable vegetation. Further information and guidance on the application of IVM is available in the document Integrated Vegetation Management for Roadsides (WSDOT, July 1997) www.wsdot.wa.gov/maintenance/pdf/IVM.pdf

**Special Maintenance Areas** – In some locations there are unique situations that require consideration in determining appropriate vegetation maintenance actions. Examples of these are: environmentally sensitive areas, areas with special neighbor concerns, areas where a higher level of maintenance is expected such as gateway interchanges or formally landscaped areas, or along highways that cross tribal or federal lands. This plan provides information and guidance on the locations and unique requirements or restrictions on maintenance activities in all of these situations throughout the area.

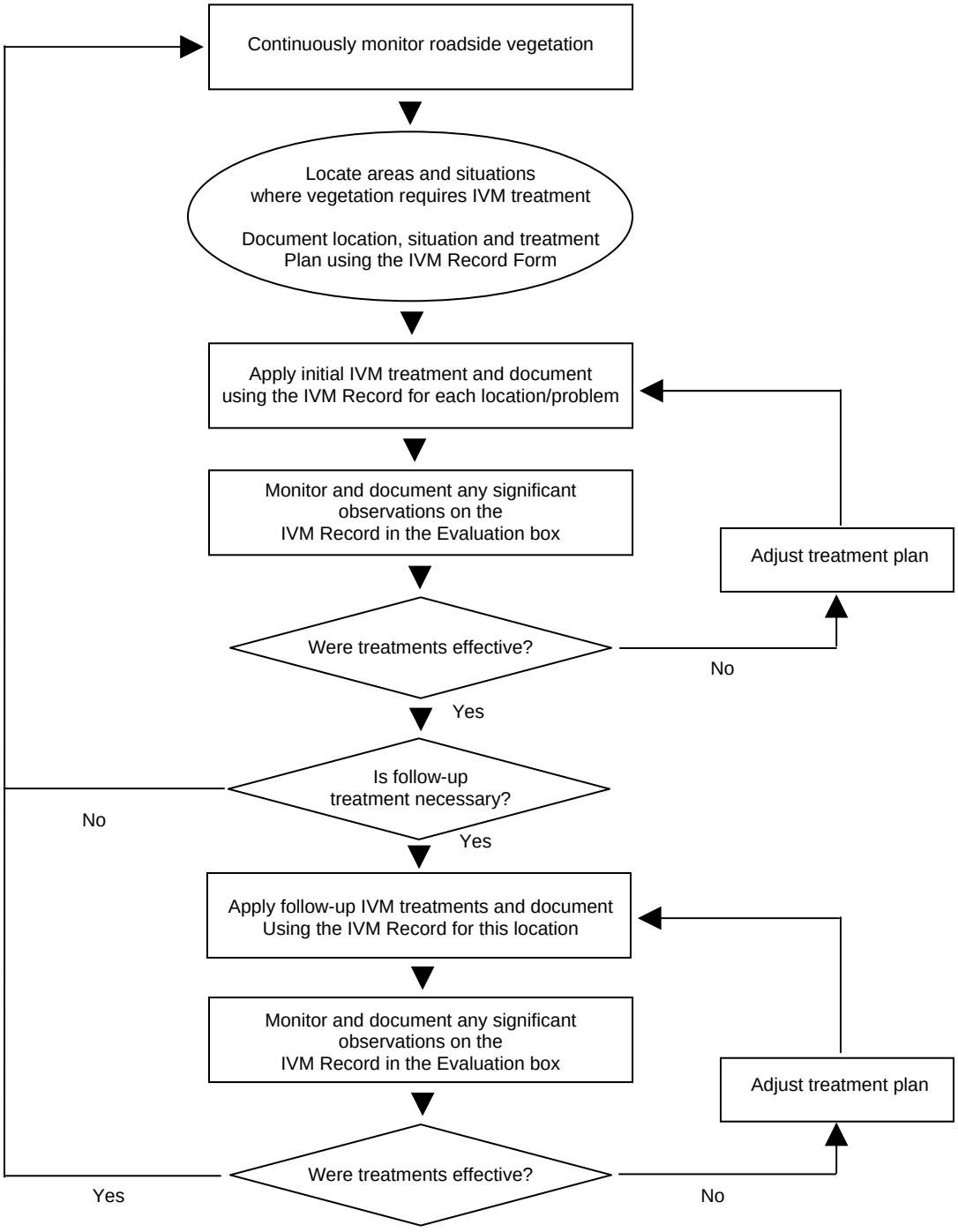
**Herbicide Use**

WSDOT has conducted independent research on herbicide risk from toxicity and environmental fate, based specifically on agency application methods and use rates. Findings from this research have been used to establish an approved palette of herbicides and application limits for state highways. A complete summary of herbicides approved for use on WSDOT rights of way is included in **Appendix B**.




**Typical Roadside Vegetation Management Zones**

Figure 2




**The IVM Decision-Making Process**
Figure 3

## *Area IVM Goals*

The purpose of this section is to identify the highest priority roadside vegetation management needs in NW Region, Area 4. Priorities are listed by specific activities and locations in relation to the three major groups for roadside vegetation maintenance performance: Control of Vegetative Obstructions, Noxious Weed Control, and Nuisance Weed Control. This section is intended to supplement the information in the following section, ***Northwest Region, Area 4 – Roadside Vegetation Management Plan*** which details the guidelines and methods for accomplishing the work of roadside vegetation management. The following lists essentially describe work plans for NW Region, Area 4 crews in 2009 and the following two to three years.

**Control of Vegetative Obstructions**
Since the work of this group of maintenance activities relates to the safety and operation of the highway, these items are considered first priority in terms of the overall roadside maintenance priority. Activities and locations of greatest need include:

- I-5 HOV By-pass ramps at 405 interchange cleared of brush for sight distance
- I-5 NB S 200$^{th}$ to 405 interchange control alder trees in median ditch line and side slope
- SR167 cut back willow trees from guardrail and shoulder
  SB 43$^{rd}$ to S 212th
  SB 277$^{th}$ to 37$^{th}$
- SR900 selectively trim encroaching brush and side branches, remove low-hanging overhead branches
- SR 164, MP 4.7 to 13.5 EB/WB, mow 1 pass 1 time, mow out further as needed at intersections.
- SR 410, MP 22.1 to 23.4 and MP 27.9 to 57.7 EB/WB, mow 1 pass 1 time beginning mid-June.
- SR169, MP 14.3 to 19.2, 9.1 to 10.2 and 1.1 to 6.9 NB/SB, mow 1 pass 1 time beginning mid-June.
- SR 515, MP 2.3 to 4.2 NB/SB, mow 1 pass 1 time beginning mid-June.
- SR 516, MP 12.4 to 14.4 EB/WB, mow 1 pass 1 time beginning mid-June.
- Continue removing encroaching side branches from conifers on SR 410 from MP 46 to 28 EB/WB in August and till October as time allows.

**Noxious Weed Control**
Noxious weeds are those species legally designated by state and county regulations for required control by all property owners. Because laws provide for fines and/or control work and billing of property owners by county administration, work under this group is considered second priority after critical safety related locations have been addressed. Species and locations are negotiated with the county weed boards on an annual basis and for 2009 include:

- I-5 Control Butterfly bush in median S188th to S144th using cutting and selective chemical application
- SR167 Continue to monitor and control policeman's Helmet in Mill Creek area around SR 18 interchange by hand pulling
- SR509 Continue to monitor location for previously controlled infestation of policemen's helmet near Des Moines Way the in vicinity of S. 168$^{th}$ St. and Miller Creek.

**Nuisance Vegetation Control**
Nuisance vegetation control includes control/management of weed species that are recommended but not mandated, by state and county law. It also includes work such as mowing of grass and weeds in areas where a more neatly maintained appearance is desired such as in gateway interchanges or highways in urbanized areas. Because nuisance vegetation control is lower priority after safety related and legally mandated activities, the location and work actions listed below may be postponed depending on availability of resources.

- I-5, control blackberries, brush and lower tree limbs by mowing and cutting in S320th and SR 516 interchanges for gateway / visibility impacts
- SR 509, control scotch broom in S. 160$^{th}$ I/C quadrants
- SR 518, Control blackberries in planting beds and scotch broom in SR 99 I/C quadrants and entrance to SeaTac Airport.
- SR 516 MP 2.3 to 3.3, control scotch broom and blackberry to enhance this section as a gateway into Kent.
- SR410, MP 27.4 to MP 27.9, mow all right of way for appearance of parking for horse trail riding.
- SR 410 at view point on and continue east on SR 410 to MP 57.7, continue spraying and removing or mowing Scotch broom.

## 1. ROUTINE MAINTENANCE ACTIVITIES

Roadside maintenance activities are considered routine when regular annual treatment is required to keep vegetative growth from interfering with highway operational and maintenance objectives. Typical routine maintenance activities are maintenance of Zone 1 and certain types of mowing and trimming.

### 1.1. Routine Pavement Edge Maintenance (Zone 1)

WSDOT is currently re-evaluating its policy for maintenance of Zone 1. Past policy and practice will be refined over the coming years in response to findings from study of long-term benefit/cost resulting from alternative treatments. For the 2006 growing season, vegetation at the edge of pavement will be managed as follows on roadsides in this maintenance area:

#### 1.1.1. Guidelines

- Zone 1 is maintained only under and around guardrail in NW Region, Area 4.
- Zone 1 under guardrail is maintained at 3' width or less.

#### 1.1.2 Methods

- Zone 1 under guardrail is maintained with an annual application of non-selective post-emergent and soil residual pre-emergent herbicides in May.
- All shoulders will be monitored for edge build-up and low spots where storm water ponds on shoulder will be selectively graded as needed.
- See **Appendix A, Routine Maintenance Prescriptions, Zone 1 Maintenance**

#### 1.1.3 Locations

- Areas for Zone 1 maintenance under guardrail are shown in **Appendix C, Zone 1 Map**

### 1.2. Routine Mowing/Trimming (Zone 2)

#### 1.2.1. Guidelines

- Routine annual mowing only occurs on limited access highways and in designated areas along secondary highways adjacent to edge of pavement in Zone 2, and beyond Zone 2 in designated focus areas such as interchanges, intersections and urban segments. In all other areas mowing is only used occasionally as part of IVM treatments for weed and brush control as described below in **Section 2**.
- Routine annual mowing occurs on all secondary roads in NW Region, Area 4. Routine mowing on secondary roads extends one pass along the edge of pavement, except where additional width is required for site distance on curves or at intersections. Mowing in these locations is conducted at least once per year.

#### 1.2.2. Methods

- On limited access corridors, routine annual mowing areas are designated as either single pass or multiple pass.
- Single pass mowing consists of one pass up to the maximum width of mowing equipment, which typically extends 6' to 8' from the edge of pavement.

- In areas designated as multiple pass mowing on limited access highways, roadsides are mowed out from edge of pavement to the right of way line, the edge of shrub or tree lines, or across the entire median widths depending on the location and the presence of desirable vegetation.
- See **Appendix A, Routine Maintenance Prescriptions, Zone 2 Maintenance**

#### 1.2.3. Locations

- Single pass routine mowing occurs on all roadsides in the area, except for inaccessible steep slopes behind Jersey barrier or guardrail. **Appendix D, Routine Mowing Map** shows locations on limited access highways where routine annual mowing occurs as multiple passes.

### 1.3. Hazard Tree Removal

#### 1.3.1. Guidelines

- Hazard tree removal is considered a routine maintenance activity because maintenance is constantly on the look out for any trees that pose an imminent threat to the highway or traffic, and whenever hazard trees are identified they are routinely removed as soon as possible.
- Hazard trees may be dead, leaning, or structurally unsound. Best horticultural judgment will be used in evaluating trees that appear diseased or structurally unsound or are believed to pose a long-term threat to determine the best course of action.
- Another consideration in removal of trees is the contribution to shading in areas prone to frost and ice formation on the highway surface. When such areas are identified, the surrounding canopy may be thinned through selective removal of large trees on the right of way.

#### 1.3.2. Methods

- Hazard trees are removed in such a manner to minimize damage and impact to the highway structure and other healthy trees and under-story vegetation.

## 2. INTEGRATED VEGETATION MANAGEMENT ACTIVITIES

For all vegetation management needs not addressed through routine maintenance as described above, activities are planned and carried out using the principles of Integrated Vegetation Management (IVM) and the decision making process diagrammed in **Figure 3** on page 7. IVM is a coordinated decision making process that uses the most appropriate vegetation management methods and strategy, along with a monitoring and evaluation system, to achieve long term roadside maintenance goals and objectives in an environmentally and economically sound manner. The goal in utilizing the IVM approach is the establishment of stable, low maintenance native or naturalized plant communities on the roadside that are compatible with:

- Highway maintenance and safety objectives
- Preservation of environmental quality
- Weed control requirements
- The concern's of WSDOT's customers and neighbors.

Long term, the use of the IVM approach can reduce the intensity and cost of maintenance as well as minimizing the need to use herbicides.

### 2.1. Integrated Vegetation Management Planning and Tracking Database

#### 2.1.1. Guidelines

- An Integrated Vegetation Management Records database is available for use statewide. This database is accessed through the same WSDOT network application as the Pesticide Application Records database.
- Any activities focused on treatment of a specific location and species infestation, or focused on treatment of any types of unwanted vegetation throughout the area will be documented with an initial IVM record outlining the long-term treatment plan. These same records will be updated over time whenever planned treatments are carried out, or when observations are made as to the success or failure of past treatments.
- Treatment records may be printed out and inserted into **Appendix G** in the plan binder.

### 2.2. Noxious Weed Control

#### 2.2.1. Guidelines

- Noxious weed control is a high priority for WSDOT because of state law requiring control of designated species. Transportation rights of way are high priority locations for control of noxious weed species within the state because they cross and link so many adjacent properties and land uses.
- Whenever possible, designated noxious weed species and infestations locations will be documented and treated following plans as defined by IVM record forms in the database.
- Washington State Law classifies noxious weeds in three classes: A, B, and C. All Class A species require eradication wherever they occur statewide. The law allows for individual county weed boards to designate individual Class B and C weeds for control within the counties depending on how widespread and potentially harmful they are at the local level.
- For the purposes of this plan, noxious weeds are defined all as Class A species and any Class B and C species selected by the counties for designated control within the counties.

- For NW Region, Area 4 the following weeds are considered mandatory for control and are known to exist on state highway rights of way in South King and Eastern Pierce Counties.

***Class A***
Class A noxious weeds are non-native species with a limited distribution in the state. No Class A weeds are known to exist on WSDOT rights of way in this area.

***Class B***
Class B weeds are more widespread than Class A, with control mandated by law only if infestations are generally limited and the species are designated within the individual counties by the County Noxious Weed Control Boards. The following Class B weeds are known to exist on state right of way and are designated for mandatory control in King and/or Pierce Counties:

| ***Common Name/Botanical Name*** | ***King*** | ***Pierce*** |
|---|---|---|
| Policeman's helmet/Impatiens glandulifera | ◆ | *Not present* |
| Ragwort tansy/Senecio jacobaea | ◆ | ◆ |
| Knapweed sp./Centaurea sp. | ◆ | ◆ |
| Purple loosestrife/Lythrum salicaria | ◆ | ◆ |
| Wild chervil/Anthriscus sylvestris | ◆ | ◆ |
| Sulfur cinquefoil/Potentilla recta | ◆ | ◆ |
| Hawkweed sp./Hieracium sp. | ◆ | ◆ |
| Dalmatian toadflax/Linaria dalmatica | ◆ | ◆ |
| Gorse/Ulex europaeus | ◆ | ◆ |
| Poison hemlock/Conium maculatum | *Not selected* | ◆ |
| Common reed/Phragmites australis | ◆ | *Not present* |

***Class C***
Class C noxious weeds are widely established throughout Washington or may impact the agricultural industry. County weed boards may still designate Class C species for control if they are limited in distribution in the county and they pose a significant potential threat. There are no Class C weeds known to exist on state right of way which are designated for mandatory control in King and/or Pierce Counties.

### 2.2.2. Methods

- Because noxious weed species are often difficult to control, herbicides treatments are often the primary, initial means of control.
- If infestations are limited to a few plants, hand pulling is also effective when the entire root system is also removed. Maintenance employees are encouraged to be aware of and look for new noxious weed occurrences, and to stop and pull these plants whenever possible.
- In conjunction with weed control treatments, a variety of other measures may be taken to promote natural vegetative competition through seeding, planting, and soil enhancement. The IVM Record and database are essential to the execution and success of these control measures.
- For recommended treatments specific to noxious weed species, see **Appendix A, IVM Prescriptions, Noxious Weed Control**

### 2.2.3. Locations

- **Appendix E, Noxious Weed Location Map** shows locations where reoccurring infestations of noxious species are known to exist in NW Region, Area 4.

## 2.3. Nuisance Weed Control

### 2.3.1. Guidelines

- For the purposes of this plan, nuisance weed species are defined as species listed as Class B and C weeds on the state noxious weed lists, but not selected for mandatory for control within individual counties.
- Nuisance weed control, while not required by state law, provides many positive benefits to the overall condition of the roadside, enhances ecological function by maintaining and enhancing native plant communities, reduces the potential for continuing spread of weed infestations, and enhances visual quality.
- Nuisance weed species will be controlled when time and budget allows.
- Priority will be given to locations with the highest chance for success including relatively new infestations and where there is potential for infestations to spread to un-infested areas of the right of way or to un-infested neighboring properties.
- Species considered nuisance weeds in NW Region, Area 4 and known to exist on state rights of way include:

| ***Common Name/Botanical Name*** | ***King*** | ***Pierce*** |
|---|---|---|
| Butterfly bush/Buddleja davidii | ◆ | ◆ |
| Poison hemlock/Conium maculatum | ◆ | *Noxious* |
| Knotweed sp./Polygonum sp. | ◆ | ◆ |
| St. Johnswort/Hypericum perforatum | ◆ | ◆ |
| Common tansy/Tanacetum vulgare | ◆ | ◆ |
| Bull thistle/Cirsium vulgare | ◆ | ◆ |
| Canada thistle/Cirsium arvense | ◆ | ◆ |
| Scotch broom/Cytisus scoparius | ◆ | ◆ |
| Common Mullein/Verbascum thapsus | ◆ | ◆ |
| Himalayan blackberry/Rubus discolor | ◆ | ◆ |

### 2.3.2. Methods

- Control measures for nuisance weed are dependent on the type of plant.
- Woody species such as Scotch broom and Himalayan blackberry are most effectively treated with a combination of cutting, herbicide treatments and encouragement of native vegetation.
- Perennial species such as Canada thistle are most effective controlled by succeeding years of properly timed herbicide applications.
- Annual or biennial species such as bull thistle and common tansy may also be effectively controlled with herbicide applications when plants are in the rosette stage in spring, or by hand pulling prior to seed set.
- See **Appendix A, IVM Prescriptions, Nuisance Weed Control**.

### 2.3.3. Locations

- Locations for nuisance weed control activities will be identified in the **Area IVM Goals** section of the plan beginning on Page 9.

## 2.4. Tree and Brush Control

### 2.4.1. Guidelines

- Trees and brush are controlled for safety reasons including preservation of sight distance at curves and intersections, and for visibility of signs, and preventing trees with large trunk diameter from growing too close to traffic lanes.
- If present, native large shrub and small tree species should be allowed to grow and mature in Zone 2 and side trimmed if they begin to encroach on site distance or other traffic operational requirements.
- Large coniferous or hardwood deciduous tree species such as Douglas fir, big leaf maple, alder, or cottonwood left to grow in Zone 2 and in some cases parts of Zone 3, can reach substantial size over a relatively short period of time and should be removed when young.

### 2.4.2. Methods

- Removal of undesirable tree and brush species is typically accomplished by hand cutting, hand pulling, properly timed selective mowing, properly timed herbicide applications, or combinations thereof.
- In some locations it is most effective to mow or cut back the majority of the existing vegetation and then selectively treat undesirable re-growth with herbicides in succeeding years, allowing desirable vegetation to grow up around and form a competitive cover.
- In some cases when tree and brush species are cut by hand, the debris can be fed through a chipper and placed back on the roadside in the form of mulch.
- Timing of these activities has a significant effect on how the vegetation grows back. Herbicide applications made by hand, directly to the cut surfaces of undesirable plants may be used to reduce or eliminate grow back.
- Chemical control methods will not be used on conifers greater than 2 feet in height.
- Chemical control methods will not be used on deciduous tree and brush species until after the first of September, except for as stump treatments in conjunction with mechanical cutting to eliminate grow-back.
- Whenever possible, safe and practical, seedling trees will be dug or pulled by hand and transplanted to areas where there growth will be beneficial and appropriate. Agreements may be signed to allow private citizens to collect seedlings for use as transplants.
- See **Appendix A, IVM Prescriptions, Tree and Brush Control**.

## 3. SPECIAL MAINTENANCE AREAS

Special Maintenance Areas are any locations with unique maintenance requirements or special considerations for roadside management. These areas may include interchanges, community entrances or enhancement areas, areas maintained by cities, bicycle paths, storm water retention ponds, state park land, wellheads, environmentally sensitive areas, school zones and roadsides adjacent to individual properties with current or annual no-spray agreements.

### 3.1. Interchanges/Intersections

#### 3.1.1. Guidelines

- Interchange areas are sometimes developed to a greater level than general roadside areas to include storm water management facilities, pedestrian areas, and permanent vegetation designed for screening, and visual enhancements for community entrances.

#### 3.1.2. Locations

- Interchanges and intersections with unique maintenance considerations are listed in **Appendix F**, along with notes describing practices for each location.

### 3.2. Formally Landscaped Sections

#### 3.2.1. Guidelines

- In some areas such as around the entrance to SeaTac airport, the roadsides have been planted with ornamental landscaping. In general, roadsides on limited access highways in urban areas are maintained to a higher level when possible.

#### 3.2.2. Locations

- Areas considered as formally landscaped are listed by route and begin and end milepost in **Appendix F**, along with notes describing practices for each location.

### 3.3. City Maintenance Areas

#### 3.3.1. Guidelines

- In most cases where non-limited access highways exist within city limits, the roadside (all area outside the highway pavement and drainage systems) are maintained by the local city government.

#### 3.3.2. Locations

- Areas where roadsides are maintenance by cities are listed by route and begin and end milepost in **Appendix F**.

### 3.4. Herbicide Sensitive Areas

#### 3.4.1. Guidelines

- In some situations herbicide use is limited or restricted because of legal requirements, neighbor concerns, or WSDOT imposed environmental safety precautions.
- In these locations, vegetation must be managed without the use of herbicides or with only a limited palette of herbicide types.

#### 3.4.2. Locations

- Herbicide sensitive areas and reason/type of limitations on herbicide use are listed by route and begin and end milepost in **Appendix F**.

### 3.5. Adopt-a-Highway and Neighbor Maintained Agreements

#### 3.5.1. Guidelines

- In some locations WSDOT has signed agreements with private citizens or neighboring businesses for maintenance of roadside vegetation.

#### 3.5.2. Locations

- Areas with existing agreements for others to maintain a portion of the roadside are listed in **Appendix F**, along with notes describing arrangements for each location.

### 3.6. Storm Water Management Facilities

#### 3.6.1. Guidelines

- Storm water management facilities include bio-filtration swales, retention ponds and infiltration ponds.
- Storm water management facilities are managed for noxious and nuisance weeds following the same guidelines mentioned in previous sections. The primary objectives with regard vegetation management within these facilities are maintenance the functionality in terms of the designed volume of retention and water flow, and the maintenance of the surrounding fence
- Trees and brush should be cleared along both sides of the perimeter fencing for a width of approximately 8 feet as needed.
- Inlets and outfalls should be kept clear of vegetation and debris.

#### 3.6.2. Locations

- Stormwater management facilities are listed by route and milepost in **Appendix F**.

### 3.7. Wetland Mitigation Sites

#### 3.7.1. Guidelines

- Wetland mitigation sites are carefully monitored through WSDOT's Environmental Services Office for up to 10 years following their creation to ensure compliance with environmental regulation. In most cases vegetation in these sites is planted and established through the construction process so the maintenance actions are not required unless noxious weeds or hazardous trees become an issue.

#### 3.7.2. Locations

- All wetland mitigation sites under maintenance responsibility within NW Region, Area 4 are listed by the nearest route and milepost in **Appendix F**.

### 3.8. Protected Terrestrial Species

#### 3.8.1. Guidelines

- WSDOT is currently working with the Department of Fish and Wildlife to identify highway locations where known populations of federally listed threatened and endangered terrestrial species exist

on or near the highway right of way. These locations are then being matched against maintenance activities with potential to have adverse impacts on the protected species so that necessary maintenance activities can timed to avoid impacts wherever possible.

- Methods and timing of roadside maintenance activities to avoid impacts on protected terrestrial species are described in the NW Region Highway Maintenance Environmental Compliance Guide for Protected Terrestrial Species (due out Spring 2007).

#### 3.8.2. Locations

- Once locations and guidelines have been finalized in the region compliance guide, locations and descriptions of limitations on vegetation maintenance activities will be added to the table in **Appendix F**.

### 3.9. Railroad Crossings

#### 3.9.1. Guidelines

- State law requires that all trees and brush be kept clear on highway rights of way within 100' of railroad crossings.
- To maximize safety at rail crossings, trees and brush should be cleared as far back as practical to maximize site distance.

#### 3.9.2. Locations

- Locations of all railroad crossing in NW Region, Area 4 are included in the table in **Appendix F**.

### 3.10. IVM Treatment Sites

#### 3.10.1. Guidelines

- As discussed in **Section 2.1**, selected sites are designated for planning, carrying out and monitoring multi-year IVM treatments for control of weeds or other unwanted vegetation.
- IVM treatment sites are documented with an initial record in the IVM Treatment Database, to identify the problem to be addressed, location(s), management goals, and integrated treatment plan.
- Records are updated each time a treatment is made, results observed, or when the treatment plan is modified based on observations.

#### 3.10.2. Locations

- All designated IVM treatment sites within NW Region, Area 4 are listed by the route and milepost in **Appendix F**. This list is updated annually as new sites may be added and successfully treated sites removed.

## Zone 1 Maintenance - Bareground Treatment

| | OPTION 1 | OPTION 2 | OPTION 3 | OPTION 4 |
|---|---|---|---|---|
| **TREATMENT TYPE:** | Gravel shoulder | Gravel shoulder | Gravel shoulder | Gravel shoulder |
| **MANAGEMENT GOALS:** | Vegetation free | Vegetation free | Vegetation free | Vegetation free |
| **METHOD:** | Annual herbicide application | Annual herbicide application | Annual herbicide application | Annual herbicide application |
| **EQUIPMENT:** | Spray truck w/ banned width nozzles | Spray truck w/ banned width nozzles | Spray truck w/ banned width nozzles | Spray truck w/ banned width nozzles |
| **MATERIALS:** | Payload 8 oz./acre + Oust 3 oz./acre | Milestone VM 7 oz./acre + Round Up Pro 64 oz./acre | Round Up Pro 64-128 oz./acre | Landmark 4.5-7 oz./acre + Razor Pro 64 oz./acre |
| **TIMING:** | Early Spring or Fall | Early Spring | Early to mid June | Early Spring |
| **IVM FOLLOW-UP:** | Evaluate control | Evaluate control | Evaluate control | Evaluate control |
| **REMARKS:** | Typically applied in a 2 to 3 ft. band. | | | |

## Zone 1 Maintenance - Bareground Treatment

| | OPTION 1 | | | |
|---|---|---|---|---|
| **TREATMENT TYPE:** | Around senstive locations | | | |
| **MANAGEMENT GOALS:** | Vegetation free | | | |
| **METHOD:** | Annual herbicide application | | | |
| **EQUIPMENT:** | Spray truck w/ banned width nozzles | | | |
| **MATERIALS:** | Aquanet at 64 oz./acre + LI700 at 32 to 64 oz./100 gal. | | | |
| **TIMING:** | Early Spring or Fall | | | |
| **IVM FOLLOW-UP:** | Evaluate control | | | |
| **REMARKS:** | Typically applied in a 2 to 3 ft. band. | | | |

## Zone 2 Maintenance - Tree and Brush

| | OPTION 1 | OPTION 2 | OPTION 3 | OPTION 4 |
|---|---|---|---|---|
| **TREATMENT TYPE:** | Confir control | Deciduous tree and brush | Deciduous tree and brush | Deciduous tree and brush |
| **MANAGEMENT GOALS:** | Control vegetation obstruction | Control vegetation obstruction | Control vegetation obstruction | Control vegetation obstruction |
| **METHOD:** | Herbicide treatment | Herbicide treatment | Herbicide treatment | Stump Treatment |
| **EQUIPMENT:** | Spray truck w/ banned width nozzles | Spray truck w/ banned width nozzles | Spray truck w/ banned width nozzles | Dobber or Spray bottle |
| **MATERIALS:** | Garlon 3A 128 oz. and Escort 1 oz. | Milestone VM 5-7 oz. plus Garlon 3A 64 oz. | Krenite S | Garlon 3A 50/50 with water or forestry oil. Garlon 4 50/50 with water or forestry oil. |
| **TIMING:** | Late summer, early fall | Late summer, early fall | Late summer before leaf turn | Anytime |
| **IVM FOLLOW-UP:** | Evaluate control | Evaluate control | Evaluate control | Evaluate control |
| **REMARKS:** | Avoid brown out by spraying late in the season and spray only to appropriate height. | | | |

## Noxious Weed Control - Policeman's Helmet

| | OPTION 1 | OPTION 2 | | |
|---|---|---|---|---|
| **TREATMENT TYPE:** | Chemical application | Chemical application | | |
| **ACTION THRESHOLD:** | Whever present (dependent on available resources) | Whever present (dependent on available resources) | | |
| **MANAGEMENT GOALS:** | Eradication of noxious weed | Eradication of noxious weed | | |
| **METHOD:** | Broadcast spray | Broadcast spray | | |
| **EQUIPMENT:** | Truck mounted sprayer where possible, backpack sprayer where necessary. | Truck mounted sprayer where possible, backpack sprayer where necessary. | | |
| **MATERIALS:** | Escort 1 to 2 oz./acre | Garlon 3 64 oz./acre | | |
| **TIMING:** | Early growth stage | Early growth stage | | |
| **IVM FOLLOW-UP:** | Reapply if necessary following year. Restore site w/ native vegetation. | Reapply if necessary following year. Restore site w/ native vegetation. | | |
| **REMARKS:** | | | | |

## Noxious Weed Control - Tansy Ragwort

| | OPTION 1 | OPTION 2 | OPTION 3 | OPTION 4 |
|---|---|---|---|---|
| **TREATMENT TYPE:** | Chemical application | Chemical application | Manual | Bio-Control |
| **ACTION THRESHOLD:** | As soon as plants appear. | As soon as plants appear. | As soon as plants appear. | |
| **MANAGEMENT GOALS:** | Eradication and control if required by county. | Eradication and control if required by county. | Eradication and control if required by county. | Eradication and control if required by county. |
| **METHOD:** | Spot treatment w/herbicide | Spot treatment w/herbicide | Hand removal. May include cut stem. | |
| **EQUIPMENT:** | Tank spayer where possible, backpack spayer where necessary. | Tank spayer where possible, backpack spayer where necessary. | | |
| **MATERIALS:** | Escort 1/2 to 1 oz./acre | Milestone VM 5 to 7 oz./acre | None required. Round -up in spray bottle for cut stem. | Flea beetle/Cinebar Moth |
| **TIMING:** | Spray by May | Spray by June | Pull by June | |
| **IVM FOLLOW-UP:** | Reapply as necessary. Seed and fertlize to reduce weed competition. | Reapply as necessary. Seed and fertlize to reduce weed competition. | Repeat as necessary. Seed and fertlize to reduce weed competition. | |
| **REMARKS:** | | | | |

## Noxious Weed Control - Knapweed sp.

| | OPTION 1 | OPTION 2 | OPTION 3 | |
|---|---|---|---|---|
| **TREATMENT TYPE:** | Chemical application | Chemical application | Manual | |
| **ACTION THRESHOLD:** | As soon as plants appear. | As soon as plants appear. | | |
| **MANAGEMENT GOALS:** | Eradication and control if required by your county. | Eradication and control if required by your county. | Eradication and control if required by your county. | |
| **METHOD:** | Spot treatment w/ herbicide | Spot treatment w/ herbicide is most affective. | Hand removal. Roots must also be removed. Remove plant from site. | |
| **EQUIPMENT:** | Tank sprayer where possible, backpack sprayer where necessary | Tank sprayer where possible, backpack sprayer where necessary. | Labor, transporation | |
| **MATERIALS:** | Milestone 5 to 7 oz./acre | Transline .66 to 1.33 pints/acre | none required | |
| **TIMING:** | Early budding stages | Early budding stages | Early budding stages | |
| **IVM FOLLOW-UP:** | Reapply as necessary. Seed and fertlize to reduce weed competition. | Reapply as necessary. Seed and fertlize to reduce weed competition. | Repeat as necessary. Seed and fertlize to reduce weed competition. | |
| **REMARKS:** | | | | |

## Noxious Weed Control - Purple Loosestrife

| | OPTION 1 | OPTION 2 | OPTION 3 | OPTION 4 |
|---|---|---|---|---|
| **TREATMENT TYPE:** | Chemical application | Chemical application | Chemical application | Biological Agents |
| **ACTION THRESHOLD:** | whenever present | whenever present | whenever present | whenever present |
| **MANAGEMENT GOALS:** | Suppression and eradication of listed noxious weeds | Suppression and eradication of listed noxious weeds | Suppression and eradication of listed noxious weeds | Suppression and eradication of listed noxious weeds |
| **METHOD:** | Spot treatment w/ herbicide | Spot treatment w/ herbicide | Spot treatment w/ herbicide | |
| **EQUIPMENT:** | Backpack spayer or pump can sprayer, pickup. | Backpack spayer or pump can sprayer, pickup. | Backpack spayer or pump can sprayer, pickup. | Pickup |
| **MATERIALS:** | Rodeo at 1-2 ozl/gallon, mixed with a non-ionic surfactant. | Auquaneat 4 pints/acre | Garlon 3A 6 to 8 quarts/acre | Galerucella Pusilla |
| **TIMING:** | July, August and Septemeber when mature plant appear. | July, August and Septemeber when mature plant appear. | July, August and Septemeber when mature plant appear. | During active growth |
| **IVM FOLLOW-UP:** | Monitor sites for re-growth. Reapply spot treatment as necessary. | Monitor sites for re-growth. Reapply spot treatment as necessary. | Monitor sites for re-growth. Reapply spot treatment as necessary. | Map and monitor release sites. Evaluate treatment. No spray and No mow zones. |
| **REMARKS:** | Apply during actively growing at or beyond bloom stage of growth. Best results are achieved when applications are made during summer or fall months. Fall treatment must be applied before a killing frost. | | | |

## Noxious Weed Control - Wild Chervil

| | OPTION 1 | OPTION 2 | | |
|---|---|---|---|---|
| **TREATMENT TYPE:** | Chemical application | Chemical application | | |
| **ACTION THRESHOLD:** | As soon as plants appear. | As soon as plants appear. | | |
| **MANAGEMENT GOALS:** | Eradication and control of noxious weeds. | Eradication and control of noxious weeds. | | |
| **METHOD:** | Spot treatment w/ herbicide. | Spot treatment w/ herbicide. | | |
| **EQUIPMENT:** | Truck mounted sprayer where possible, backpack sprayer | Truck mounted sprayer where possible, backpack sprayer | | |
| **MATERIALS:** | 2 oz./acre Escort and 7oz./acre Milestone VM | 1-3 oz./acre Telar DF | | |
| **TIMING:** | Prebloom April/May | Apply early post emergence to actively growing plants | | |
| **IVM FOLLOW-UP:** | Repeat as necessary. Seed and fertlize to reduce weed competition. | Repeat as necessary | | |
| **REMARKS:** | Reportedly, it tolerates 24-D | | | |

## Noxious Weed Control - Sulfur Cinquefoil

| | OPTION 1 | OPTION 2 | OPTION 3 | |
|---|---|---|---|---|
| **TREATMENT TYPE:** | Chemical application | Chemical application | Chemical application | |
| **ACTION THRESHOLD:** | When resources are available. | When resources are available. | When resources are available. | |
| **MANAGEMENT GOALS:** | Minimize populations,prevent further spread of nuisance weeds. | Minimize populations,prevent further spread of nuisance weeds. | Minimize populations,prevent further spread of nuisance weeds. | |
| **METHOD:** | Foliar treatment, mechanical. | Foliar treatment | Foliar treatment | |
| **EQUIPMENT:** | Truck mounted sprayer where possible, backpack spayer where necessary, mower. | Truck mounted sprayer where possible, backpack spayer where necessary, mower. | Truck mounted sprayer where possible, backpack spayer where necessary, mower. | |
| **MATERIALS:** | Crossbow 128 oz./acre | Milestone 4 to 7 VM oz./arce | Escort 1 to 2 oz./acre | |
| **TIMING:** | Spring | Spring | Spring | |
| **IVM FOLLOW-UP:** | Reapply as necessary. Seed and fertilize or plant to restore native plant community. | Reapply if necessory | Reapply if necessory | |
| **REMARKS:** | | | | |

## Noxious Weed Control - Hawkweed sp.

| | OPTION 1 | OPTION 2 | | |
|---|---|---|---|---|
| **TREATMENT TYPE:** | Chemical application | Chemical application | | |
| **ACTION THRESHOLD:** | Apply while actively growing | Apply while actively growing | | |
| **MANAGEMENT GOALS:** | Eradication of listed noxious weeds. | Eradication of listed noxious weeds. | | |
| **METHOD:** | Power sprayer | Power sprayer | | |
| **EQUIPMENT:** | Spray tank | Spray tank | | |
| **MATERIALS:** | Milestone VM 4 to 6 oz./acre | Transline .66 to 1 pint/acre | | |
| **TIMING:** | Bolting stage | Bolting stage | | |
| **IVM FOLLOW-UP:** | Multiple treatment as needed | Multiple treatment as needed | | |
| **REMARKS:** | | | | |

## Noxious Weed Control - Dalmation Toadflax

| | OPTION 1 | OPTION 2 | OPTION 3 | |
|---|---|---|---|---|
| **TREATMENT TYPE:** | Chemical application | Chemical application | Chemical application | |
| **ACTION THRESHOLD:** | As soon as plants appear. | As soon as plants appear. | As soon as plants appear. | |
| **MANAGEMENT GOALS:** | Eradication and control only if your county requires. | Eradication and control only if your county requires. | Eradication and control only if your county requires. | |
| **METHOD:** | Spot treatment w/ heribicde | Spot treatment w/ heribicde | Spot treatment w/ heribicde | |
| **EQUIPMENT:** | Backpack sprayer or spray bottle, pickup, etc. | Backpack sprayer or spray bottle, pickup, etc. | Backpack sprayer or spray bottle, pickup, etc. | |
| **MATERIALS:** | Telar at label rates w/ silicon based surfactant at 2 to 3 oz./acre | Escort 1 to 2 oz./acre | Plateau 12 oz./acre with methylated seed oil | |
| **TIMING:** | When in bloom between June and August | When in bloom between June and August | Apply in the fall | |
| **IVM FOLLOW-UP:** | Reaply as necessary. Seed and fertlize to reduce weed competition. | Reaply as necessary. Seed and fertlize to reduce weed competition. | Reaply as necessary. Seed and fertlize to reduce weed competition. | |
| **REMARKS:** | | | | |

## Noxious Weed Control - Gorse

| | OPTION 1 | OPTION 2 | OPTION 3 | |
|---|---|---|---|---|
| **TREATMENT TYPE:** | Chemical application | Chemical application | Chemical application | |
| **ACTION THRESHOLD:** | As soon as plant appears | As soon as plant appears | As soon as plant appears | |
| **MANAGEMENT GOALS:** | Eradication and control of listed noxious weeds. | Eradication and control of listed noxious weeds. | Eradication and control of listed noxious weeds. | |
| **METHOD:** | Spot treatment w/ herbicide. | Spot treatment w/ herbicide. | Spot treatment w/ herbicide. | |
| **EQUIPMENT:** | Tank sprayer where possible, backpack spray where necessary. | Tank sprayer where possible, backpack spray where necessary. | Tank sprayer where possible, backpack spray where necessary. | |
| **MATERIALS:** | 1/2 to 1 oz. Escort XP with Phase | 1 to 8 quartz Garlon 4 per acre | Razor Pro 2 to10 quartz per acre | |
| **TIMING:** | Spray by June | While actively growing | While actively growing | |
| **IVM FOLLOW-UP:** | Reapply as necessary. Seed and fertilize to reduce weeds competition. | Reapply as necessary | Reapply as necessary | |
| **REMARKS:** | Be observant of temperature when apply Garlon 4 | | | |

## Noxious Weed Control - Poison Hemlock

| | OPTION 1 | OPTION 2 | OPTION 3 | OPTION 4 |
|---|---|---|---|---|
| **TREATMENT TYPE:** | Chemical application | Hand removal | Chemical application | Chemical application |
| **ACTION THRESHOLD:** | When plants appear | When plants appear | When plants appear | When plants appear |
| **MANAGEMENT GOALS:** | Eradication and control of listed noxious weeds. | Eradication and control of listed noxious weeds. | Eradication and control of listed noxious weeds. | Eradication and control of listed noxious weeds. |
| **METHOD:** | Spot treatment w/ herbicide | Hand removal. Remove plant from site | Spot treatment w/ herbicide | Spot treatment w/ herbicide |
| **EQUIPMENT:** | Backpack sprayer, pickup etc. | Labor, transporation | Backpack sprayer, pickup etc. | Backpack sprayer, pickup etc. |
| **MATERIALS:** | Telar 1 to 3 oz. | None required | Excort 1 to 2 oz./Phase | 1 -2 percent per acre Glyphosate |
| **TIMING:** | Spray by April | Pull by Arpil | Apply to actively growing plan | Treat at bud to full bloom stage of growth |
| **IVM FOLLOW-UP:** | Reapply as necessary. Seed and fertilize to reduce weed competition. | Repeat as necessary. Seed and fertlize to reduce weed competition. | Repply as necessary | Reapply as necessary |
| **REMARKS:** | Use a nonionic surfactant or silicone surfactant | | | |

## Noxious Weed Control - Common Reed

| | OPTION 1 | OPTION 2 | OPTION 3 | |
|---|---|---|---|---|
| **TREATMENT TYPE:** | Chemical application | Chemical application | Chemical application | |
| **ACTION THRESHOLD:** | Whever present (dependent on available resources) | Whever present (dependent on available resources) | Whever present (dependent on available resources) | |
| **MANAGEMENT GOALS:** | Eradication of noxious weed | Eradication of noxious weed | Eradication of noxious weed | |
| **METHOD:** | Spot treatment w/ heribicde | Spot treatment w/ heribicde | Spot treatment w/ heribicde | |
| **EQUIPMENT:** | Truck mounted sprayer where possible, backpack sprayer where necessary. | Truck mounted sprayer where possible, backpack sprayer where necessary. | Truck mounted sprayer where possible, backpack sprayer where necessary. | |
| **MATERIALS:** | Oust 3 to 5 oz./acre | Glysophate 1 to 4 quarts/acre | Habitat 4 to 6 oz./acre | |
| **TIMING:** | Early growth stage | Early growth stage | Apply when actively growing | |
| **IVM FOLLOW-UP:** | Reapply if necessary following year. Restore site w/ native vegetation. | Re-treat green stems as necessary. Restore site w/ native vegetation | Re-treat green stems as necessary. Restore site w/ native vegetation | |
| **REMARKS:** | | | | |

## Nuisance Weed Control - Butterfly Bush

| | OPTION 1 | OPTION 2 | OPTION 3 | |
|---|---|---|---|---|
| **TREATMENT TYPE:** | Chemical application | Chemical application | Chemical application | |
| **ACTION THRESHOLD:** | Whever present | Whever present | Whever present | |
| **MANAGEMENT GOALS:** | Eradication | Eradication | Eradication | |
| **METHOD:** | Cut Stump | Broadcast spray | Broadcast spray | |
| **EQUIPMENT:** | Truck mounted sprayer where possible, backpack sprayer where necessary. | Power Spray | Power Spray | |
| **MATERIALS:** | Garlon 4 50/50 with MSO | Garlon 3A 64 oz./acre | Crossbow 64 oz./acre | |
| **TIMING:** | Late season | Early season to Mid season | Early season to Mid season | |
| **IVM FOLLOW-UP:** | Re-cut/treat as necessary. | Reapply if needed | Reapply if needed | |
| **REMARKS:** | | | | |

## Nuisance Weed Control - Knotweed sp.

| | OPTION 1 | OPTION 2 | | |
|---|---|---|---|---|
| **TREATMENT TYPE:** | Chemical application | Stem injection | | |
| **ACTION THRESHOLD:** | Whever present (dependent on available resources) | Smaller infestations and or near water | | |
| **MANAGEMENT GOALS:** | Eradication and control only if your county requires. | Eradication and control only if your county requires. | | |
| **METHOD:** | Spot treatment w/ heribicde | Stem injection w/ herbicide | | |
| **EQUIPMENT:** | Truck mounted sprayer where possible, backpack sprayer where necessary. | Injection equipment | | |
| **MATERIALS:** | Habitat/MSO<br>0.5-1 lbs. per acre | Concentrated Roundup at 2% | | |
| **TIMING:** | Early to late bloom between July and August | Once seasonal growth has occurred | | |
| **IVM FOLLOW-UP:** | Reapply if necessary following year. Restore site w/ native vegetation. | Re-treat green stems as necessary. Restore site w/ native vegetation | | |
| **REMARKS:** | | | | |

## Nuisance Weed Control - St. Johnswort

| | OPTION 1 | OPTION 2 | OPTION 3 | |
|---|---|---|---|---|
| **TREATMENT TYPE:** | Chemical application | Chemical application | | |
| **ACTION THRESHOLD:** | When resources are available. | When resources are available. | | |
| **MANAGEMENT GOALS:** | Minimize populations and prevent further spread of nuisance weeds. | Minimize populations and prevent further spread of nuisance weeds. | | |
| **METHOD:** | Foliar treatment, mechanical. | Foliar treatment, mechanical. | | |
| **EQUIPMENT:** | Truck mounted sprayer where possible, backpack sprayer where necessary, mower. | Truck mounted sprayer where possible, backpack sprayer where necessary, mower. | | |
| **MATERIALS:** | Milestone VM 5 to 7 oz./acres | 1-2 oz./acre Escort plus Phase | | |
| **TIMING:** | Apply after weeds emerge | Apply after weeds emerge | | |
| **IVM FOLLOW-UP:** | Reapply as necessary | Reapply as necessary | | |
| **REMARKS:** | Repeat application as needed | | | |

## Nuisance Weed Control - Common Tansy

| | OPTION 1 | OPTION 2 | OPTION 3 | |
|---|---|---|---|---|
| **TREATMENT TYPE:** | Whever present | Whever present | Whever present | |
| **ACTION THRESHOLD:** | Whever present | Whever present | Whever present | |
| **MANAGEMENT GOALS:** | Eradication | Eradiction | Eradiction | |
| **METHOD:** | Foliar treatment. Cut stem treatment. | Foliar treatment | Foliar treatment | |
| **EQUIPMENT:** | Truck mounted sprayer where possible, backpack sprayer where necessary. | Truck mounted sprayer where possible, backpack sprayer where necessary. | Truck mounted sprayer where possible, backpack sprayer where necessary. | |
| **MATERIALS:** | Telar 1 to 3 oz./acre | Escort 1 to 2 oz./acre | Milestone VM 3 to 5 oz./acre | |
| **TIMING:** | Anytime | Apply to actively growing vegetation in the Spring | Apply to actively growing vegetation in the Spring | |
| **IVM FOLLOW-UP:** | Re-cut/treat as necessary. | Retreat as necessary | Retreat as necessary | |
| **REMARKS:** | | | | |

## Nuisance Weed Control - Bull Thistle

| | OPTION 1 | OPTION 2 | OPTION 3 | OPTION 4 |
|---|---|---|---|---|
| **TREATMENT TYPE:** | Chemical application | Chemical application | Chemical application | Bio-Control |
| **ACTION THRESHOLD:** | Wherever present | Wherever present | Wherever present | |
| **MANAGEMENT GOALS:** | Eradication and control of selected nuisance weeds and brush. | Eradication and control of selected nuisance weeds and brush. | Eradication and control of selected nuisance weeds and brush. | Eradication and control of selected nuisance weeds and brush. |
| **METHOD:** | Foliar treatment w/ herbicide | Foliar treatment w/ herbicide | Foliar treatment w/ herbicide | Bio-Control |
| **EQUIPMENT:** | Truck mounted sprayer where possible, backpack sprayer where necessary. | Truck mounted sprayer where possible, backpack sprayer where necessary. | Truck mounted sprayer where possible, backpack sprayer where necessary. | |
| **MATERIALS:** | Transline at 2/3 - 1 1/3 pint/acre | Milestone VM 3 to 5 oz. per acre | Telar XP 1-3 oz./acre | Urophora Stylata |
| **TIMING:** | Apply from rosette to bud stage to actively growing thistle | Apply to young actively growing weeds. | Apply to young actively growing weeds. | Early growing stage |
| **IVM FOLLOW-UP:** | Repeat annually as necessary | Repeat annually as necessary | Repeat annually as necessary | Reapply as necessary |
| **REMARKS:** | | | | |

## Nuisance Weed Control - Canada Thistle

| | OPTION 1 | OPTION 2 | OPTION 3 | OPTION 4 |
|---|---|---|---|---|
| **TREATMENT TYPE:** | Chemical application | Chemical application | Chemical application | Bio-Control |
| **ACTION THRESHOLD:** | Wherever present | Wherever present | Wherever present | Wherever present |
| **MANAGEMENT GOALS:** | Eradication and control of selected nuisance weeds and brush. | Eradication and control of selected nuisance weeds and brush. | Eradication and control of selected nuisance weeds and brush. | Eradication and control of selected nuisance weeds and brush. |
| **METHOD:** | Foliar treatment w/ herbicide | Foliar treatment w/ herbicide | Foliar treatment w/ herbicide | |
| **EQUIPMENT:** | Truck mounted sprayer where possible, backpack sprayer where necessary. | Truck mounted sprayer where possible, backpack sprayer where necessary. | Truck mounted sprayer where possible, backpack sprayer where necessary. | |
| **MATERIALS:** | Transline at 2/3 - 1 1/3 pint/acre | Milestone VM 5-7 oz./acre | Telar XP 1-3 oz./acre | Rhinocyllus Conicus |
| **TIMING:** | Apply from rosette to bud stage to actively growing thistle | Pre bud stage | Apply to the bud at bloom stage | Early growing season |
| **IVM FOLLOW-UP:** | Repeat annually as necessary | Apply before first frost | Apply before first frost | Redeploy as needed |
| **REMARKS:** | For most effective control, apply as a broadcast treatment to the entire infested area. | | | |

## Nuisance Weed Control - Scotch broom

| | OPTION 1 | OPTION 2 | OPTION 3 | OPTION 4 |
|---|---|---|---|---|
| **TREATMENT TYPE:** | Chemical application | Manual application | Mechanical application | Bio-Control |
| **ACTION THRESHOLD:** | Whever new infestations occur (dependant on available resources) | Wherever present (dependant on available resources) | When resources are available. | When ever present |
| **MANAGEMENT GOALS:** | Minimize populations and prevent further spread of weed. | Minimize populations and prevent further spread of weeds. | Minimize populations and prevent further spread of nuisance weeds. | Minimize spread |
| **METHOD:** | Foliar treatment w/herbicide. | Hand pull | Mechanical control with follow-up cut stump treatment. | Bio-Control |
| **EQUIPMENT:** | Truck mounted sprayer where possible, backpack sprayer where necessary. | Weed wrench option, brown brush monitor | Mower, backpack sprayer where necessary. | Truck |
| **MATERIALS:** | Garlon 3A at 2 quartz with Escort 2 oz. with Phase per acre | Garlon 4 mix 2 to 1 with crop oil | Garlon 3A at 1 to 1 with water or surfactant | Exapionfuscirostre |
| **TIMING:** | Apply during actively growing season | Anytime | After mowing | release when actively growing. |
| **IVM FOLLOW-UP:** | Reapply as necessary. Seed and fertilize or plant to restore native plant community. | Reapply as necessary. Seed and fertilize or plant to restore native plant community. | Re-cut/treat as necessary. Seed and fertilize or plant to restore native plant community. | Evaluate, redeploy if necessary |
| **REMARKS:** | | | | |

## Nuisance Weed Control - Common Mullein

| | OPTION 1 | | | |
|---|---|---|---|---|
| **TREATMENT TYPE:** | Chemical application | | | |
| **ACTION THRESHOLD:** | Whe resources are available. | | | |
| **MANAGEMENT GOALS:** | Minimize population and prevent further spread of nuisance weeds. | | | |
| **METHOD:** | Foliar treatment, mechanical | | | |
| **EQUIPMENT:** | Truck mounted sprayer where possible, backpack spayer where necessary, mower. | | | |
| **MATERIALS:** | 7oz./acre Milestone VM | | | |
| **TIMING:** | Spring | | | |
| **IVM FOLLOW-UP:** | Reapply as necessary. Seed and fertlize or plant to restore native plant community. | | | |
| **REMARKS:** | | | | |

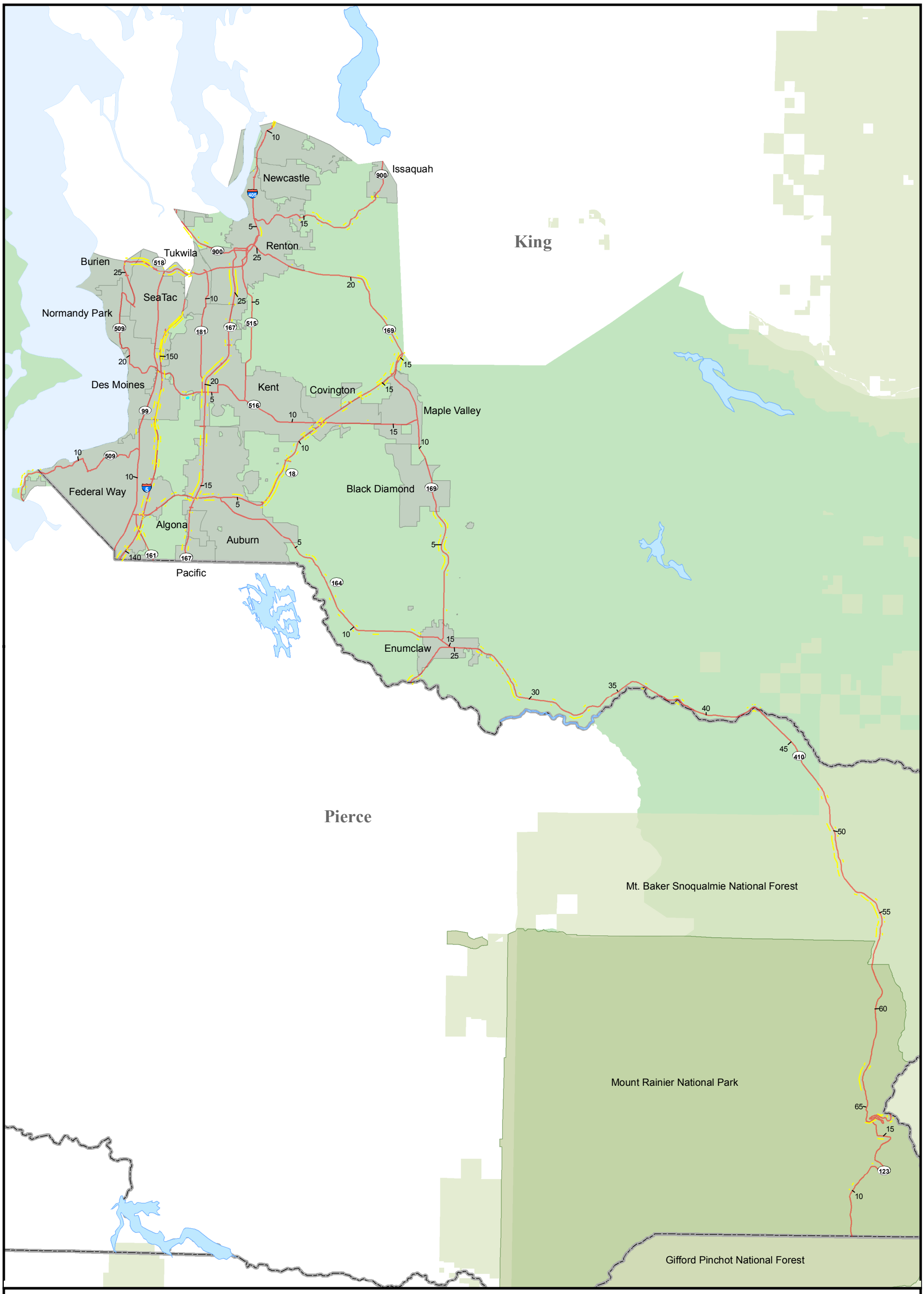
## Nuisance Weed Control - Himalayan Blackberry

| | OPTION 1 | OPTION 2 | | |
|---|---|---|---|---|
| **TREATMENT TYPE:** | Chemical application | Mechanical application | | |
| **ACTION THRESHOLD:** | Whever present (dependant on resources) | When resources are available. | | |
| **MANAGEMENT GOALS:** | Control and eradicate if county requires. | Minimize populations and prevent further spead of weed. | | |
| **METHOD:** | Foliar treatment w/ herbicide | Mechanical control with follow-up cut stump treatment. | | |
| **EQUIPMENT:** | Truck mounted sprayer where possible, backpack spayer where necessary. | Mower or hand labor, backpack spayer or spray bottle where necessary. | | |
| **MATERIALS:** | Krenite 1.5-6 gallons/acre | Crossbow 1.25-1.5 gallons/acre | | |
| **TIMING:** | In the Fall, after berries drop. | After mowing, in the fall. | | |
| **IVM FOLLOW-UP:** | Reapply as necessary. Seed and fertilize or plant to restore native plant community | Re-cut/treat as necessary. Seed and fertilize or plant to restore native community. | | |
| **REMARKS:** | | | | |

## *Herbicides Approved for Use on WSDOT Rights of Way*

**When making herbicide applications:**
1. Always read and follow product labels
2. Always use personal protective equipment when mixing, loading, and applying

| ***Chemical Name*** | ***Product Name(s)*** | ***Where Used*** | ***How/Why Used*** | ***Notes/Recommendations*** | ***Restrictions*** | ***Cautions*** |
|---|---|---|---|---|---|---|
| 2,4-D | Weedar 64<br>Amine 4<br>Veteran 720<br>Curtail<br>WeedDestroy<br>Platoon<br>Crossbow<br>Escalade<br>Weedmaster<br>Solution<br>Savage<br>Weedone LV4 | Noxious and nuisance weed control, and tree and brush control, Zones 2 and 3 | Selective broadleaf treatment | Ester and acid formulations of 2,4-D may provide a good alternative to amine formulations. A number of the 2,4-D products come premixed with other herbicides. | Amine formulations of 2,4-D are restricted for use within 60' of all water | Amine formulations cause irreversible eye damage and are highly toxic to rainbow trout. All 2,4-D products pose risks when applied near grapes and other sensitive crops. |
| Bromacil | Krovar 1 DF<br>Hyvar | Zone 1 | Nonselective pre-emergent grass and weed control | Krovar and Hyvar are premixed with diuron | Westside - Restricted for use<br>Eastside - Krovar restricted for use within 60' of all water | Bromacil is potentially mobile in soil, use caution if rain is possible. |
| Bromoxynil | Buctril 2EC<br>BroClean<br>Brox 2E | Noxious and nuisance weed control, Zones 2 and 3 | Selective broadleaf treatment | Effective broadleaf weed control without grass seed suppression | Westside - Restricted for use<br>Eastside - Restricted for use within 60' of all water | Highly toxic to fresh water fish |
| Chlorsulfuron | Telar XP<br>Landmark XP | Noxious and nuisance weed control, Zones 2 and 3 | Selective broadleaf treatment | Product highly effective on Canadian thistle and horsetail. Landmark is premixed with Oust. | None | None |
| Clopyralid | Transline<br>Curtail<br>Pathfinder | Noxious and nuisance weed control, Zones 2 and 3 | Selective broadleaf treatment | Curtail is premixed with 2,4-D, Pathfinder is premixed with triclopyr | Curtail and Pathfinder are restricted for use within 60' of all water because of mixture with other restricted herbicides. | Curtail contains 2,4-D amine which causes irreversible eye damage and is highly toxic to rainbow trout |
| Dicamba | Vanquish<br>Veteran 720 | Noxious and nuisance weed control, and tree and brush control, Zones 2 and 3 | Selective broadleaf treatment | Vanquish is the dicamba formulation without 2,4-D | Veteran 720 is restricted for use within 60' of all water because of 2,4-D amine content | Veteran 720 contains 2-4-D amine which causes irreversible eye damage and is highly toxic to rainbow trout |
| Dichlobenil | Norosac 4G<br>Casoron | Ornamental planting beds | Pre-emergent weed control in ground cover beds. Post emergent control of grasses. | Highly effective for pre-emergent control of unwanted weeds in ornamentals | Restricted for use within 60' of all water | Dichlobenil is highly toxic to aquatic insects |
| Diflufenzopyr | Overdrive | Noxious and nuisance weed control, Zones 2 and 3 | Selective broadleaf treatment | None | None | None |
| Diuron | Karmex<br>Diuron 4 L<br>Diuron 80 DF | Zone 1 | Nonselective pre-emergent grass and weed control | Cost effective weed control for Zone 1 in Eastern Washington | Westside - Restricted for use<br>Eastside - Restricted for use within 60' of all water | Highly toxic to fish. |
| Flumioxazin | Payload | Zone 1 | Nonselective pre-emergent grass and weed control | Second year of use in zone 1, still evaluating | Restricted for use within 60' of all salt water | Highly toxic to estuarine invertebrates |
| Fluroxypyr | Vista | Noxious and nuisance weed control, Zones 2 and 3 | Selective broadleaf treatment | None | None | Highly toxic to Eastern Oyster, high surface runoff potential |
| Fosamine | Krenite S | Tree and brush control in Zones 2 & 3 | Selective broadleaf treatment | Effective broadleaf tree control without visual impacts | None | None |
| Glyphosate | Roundup Pro<br>Razor Pro<br>Buccaneer<br>Aquaneat<br>Rodeo<br>Aquamaster | Zone 1, spot spray around shrub and tree plantings, aquatic weed control (Rodeo, Aquamaster) | Nonselective control of all vegetation | Rodeo, Aquamaster and Aquaneat are approved for use in or over water. Aquatic versions of glyphosate products are approved for use with NPDES permit. | None | None |
| Imazapyr | Arsenal<br>Habitat | Zone 1 | Pre and post-emergent non-selective control of all vegetation | Habitat is an aquatic version of Arsenal - good alternative to glyphosate in certain cases | None | High surface runoff potential, potentially mobile in soil if rain is possible. |
| Isoxaben | Gallery 75DF | Turf & Ornamental | Pre-emergent weed control in ground cover beds | Works well by itself or with Ronstar | Restricted for use within 60' of all water | High surface runoff potential |
| Metsulfuron-methyl | Escort XP<br>Metsulfuron Methyl 60 DF | Noxious and nuisance weed control, and tree and brush control, Zones 2 and 3 | Selective broadleaf and conifer treatment | None | None | None |
| Norflurazon | Predict | Zone 1 | Pre-emergent Weed control in Zone 1 and ground cover beds | Good Zone 1 product but may be difficult to keep in suspension | Restricted for use within 60' of all water | High surface runoff potential |
| Oryzalin | Oryzalin A.S.<br>Surflan A.S | Zone 1<br>Ornamental planting beds | Pre-emergent Weed control in Zone 1 and ground cover beds | Product requires additional rinsing to thoroughly remove residues from empty container | Restricted for use within 60' of all water | Highly toxic to fish |
| Oxadiazon | Ronstar G<br>Ronstar WSP | Turf & Ornamental | Pre-emergent weed control in ground cover beds | Works well by itself or with Gallery | Restricted for use within 60' of all water, gardens, plants bearing edible fruit | Highly toxic to fish |
| Pendimethalin | Pendulum 2G<br>Pendulum Aqua | Zone 1<br>Turf & Ornamental | Nonselective Pre-emergent grass and weed control | None | Westside - Restricted for use<br>Eastside - Restricted for use within 60' of all water | Highly toxic to fish, high potential for loss on eroded soil |
| Picloram | Tordon | Noxious and nuisance weed control, Zones 2 and 3 | Selective broadleaf treatment | Highly effective for conifer and broadleaf weed control in Eastern Washington | Westside - Restricted for use<br>Eastside - Restricted for use within 60' of all water | Highly mobile in soil and readily adsorbed through roots of desirable trees |
| Pyraflufen | Edict | Noxious and nuisance weed control, Zones 2 and 3 | 2,-4-D substitute, effective on Kochia, Russian thistle | Effective with Roundup for Kochia control | Restricted for use within 60' of all water | Irreversible eye damage, highly toxic to Rainbow Trout |
| Sulfentrazone | Portfolio | Zone 1 | Nonselective pre-emergent grass and weed control | New product available for use in 2006 | Westside - Restricted for use<br>Eastside - Restricted for use within 60' of all water | High surface runoff potential, potentially mobile in soil if rain is possible. |
| Sulfometuron-methyl | Oust<br>Landmark XP | Zone 1 | Nonselective pre/post emergent grass and weed control | Landmark is premixed with Telar | None | None |
| Tebuthiuron | Spike 80DF | Zone 1 | Nonselective pre-emergent grass and weed control | None | Westside - Restricted for use<br>Eastside - Restricted for use within 60' of all water | High surface runoff potential, potentially mobile in soil if rain is possible. |
| Triclopyr Amine | Garlon 3A | Noxious and nuisance weed control, and tree and brush control, Zones 2 and 3 | Selective broadleaf treatment | None | None | Irreversible eye damage |
| Triclopyr Ester | Garlon 4<br>Crossbow<br>Pathfinder | Noxious and nuisance weed control, and tree and brush control, Zones 2 and 3 | Selective broadleaf treatment | Works well for invert applications. Crossbow is premixed with 2,4-D, Pathfinder with clopyralid | Restricted for use within 60' of all water | Highly toxic to fish |

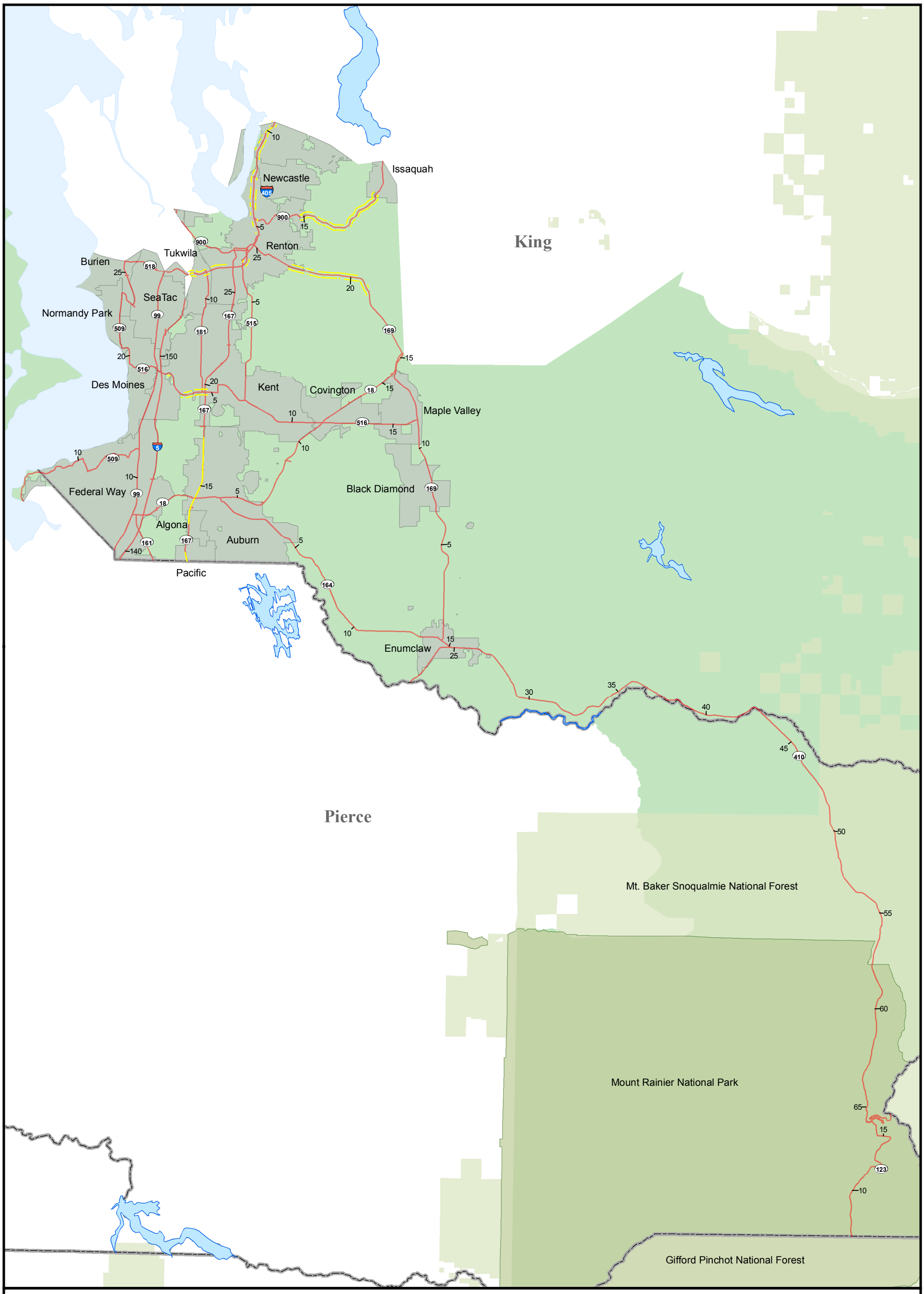



# Appendix C:

**Northwest Region Area 4**
**Zone 1 Maintenance**
**Map 1 of 1**

2009

*GISWorkbench.mxd/Print Date*




# Appendix D:

**Northwest Region Area 4**
**Routine Mowing**
**Map 1 of 1**

2009

*GISWorkbench.mxd/Print Date*

**Designated for control in NW area 4:**
(Pierce and King County)

Policeman's Helmet/
Impatiens glandulifera

Tansy Ragwort/
Senecio jacobaea

Knapweed sp./
Centaurea sp.

Purple Loosestrife/
Lythrum salicaria

Wild Chervil/
Anthriscus sylvestris

Sulfur Cinquefoil/
Potentilla recta

**Designated for control in NW area 4:**
(Pierce and King County)

Hawkweed sp./
Heiracium sp.

Dalmation Toadflax/
Linaria dalmatica

Gorse/
Ulex europaeus

Common Reed/
Phragmites australis


*Poison Hemlock/
Conium maculatum

*Designated for control in Pierce County, nuisance in King County

**Nuisance weeds in NW area 4:**
(Pierce and King County)

Butterfly Bush/
Buddleja davidii


*Poison Hemlock/
Conium maculatum

Knotweed sp./
Polygonum sp.

St. Johnswort/
Hypericum perforatum

Common Tansy/
Tanacetum vulgare

Bull Thistle/
Cirsium vulgare

*Nuisance in King, designated for control in Pierce County

**Nuisance weeds in NW area 4:**
(Pierce and King County)

Canada Thistle/
Cirsium arvense

Scotch Broom/
Cytisus scoparius


Common Mullein/
Verbascum thapsus

Himalayan Blackberry/
Rubus discolor

King

Pierce

Newcastle
Issaquah
Seattle
Renton
Burien
Tukwila
SeaTac
Normandy Park
Des Moines
Kent
Covington
Maple Valley
Auburn
Federal Way
Tacoma
Algona
Pacific
Black Diamond
Enumclaw
Mt. Baker Snoqualmie National Forest
Mount Rainier National Park
Gifford Pinchot National Forest

State Routes
Dalmation Toadflax
Gorse
Knapweed
Tansy Ragwort
75 Mile Post Markers
Coast
Major Lakes
County Boundaries
City Limits
National Park
National Forest
NW area 4

0 5
Miles

N

Washington State Department of Transportation

# Appendix E:

**Northwest Region Area 4**
**Noxious Weed Location**
**Map 1 of 1**

2009

*GISWorkbench.mxd/Print Date*

# *Appendix F* *Special Maintenance Areas*

***Definitions:***

*Locations are distinguished between opposing sides of the highway by right shoulder (RS) and median shoulder (LS) in relation to direction of travel, indicated by increasing (INC) or decreasing (DEC) mile markers.*

*Descriptions - Brief explanation of special treatment required*

| SR | Direction | Shoulder | BEG MP | END MP | Type | Description |
|---|---|---|---|---|---|---|
| 005 | INC | RS | 140.18 | 140.89 | SeaTac Rest Area & Weigh St. | |
| 005 | INC | RS | 141.76 | 142.32 | Exit 142 A SR 18 | |
| 005 | INC | RS | 142.92 | 143.35 | Weyerhaeuser request-mow out | |
| 005 | INC | RS | 143.60 | 144.01 | Exit 143 Fed. Way S. | |
| 005 | INC | RS | 146.50 | 147.00 | Exit 147 S. 272nd ST. | |
| 005 | INC | RS | 148.83 | 149.14 | Exit 149 A Kent | |
| 005 | INC | RS | 149.22 | 149.55 | Exit 149 B Des Moines | |
| 005 | INC | RS | 150.90 | 151.15 | Exit 151 200th ST. | |
| 005 | INC | RS | 152.07 | 152.47 | Exit 152 Orilla RD. | |
| 005 | DEC | RS | 141.88 | 140.62 | Weight Station | |
| 005 | DEC | RS | 142.33 | 141.81 | Exit 142 B Puyallup | |
| 005 | DEC | RS | 144.07 | 143.59 | Exit 143 Federal Way | |
| 005 | DEC | RS | 147.17 | 146.72 | Exit 147 S. 272nd ST. | |
| 005 | DEC | RS | 148.49 | 148.05 | Midway Land Fill | Mowed by others |
| 005 | DEC | RS | 149.47 | 149.05 | Exit 149 Des Moines | |
| 005 | DEC | RS | 151.55 | 151.23 | Exit 151 200th ST. | |
| 005 | DEC | RS | 152.72 | 152.10 | Exit 152 Orilla RD. | |
| 005 | | | Exit 272 | | Starr Lake Pit Site | |
| 018 | INC | RS | 2.47 | 3.50 | Exit to SR 167 | |
| 018 | INC | RS | 3.55 | 3.82 | Exit C St. SW | |
| 018 | INC | RS | 4.04 | 4.46 | Exit to Auburn Way | |
| 018 | INC | RS | 6.03 | 6.42 | Exit to Auburn/Black Diamond Rd. | |
| 018 | INC | RS | 8.75 | 9.57 | Exit to 304th St. | |
| 018 | INC | RS | 10.97 | 12.05 | Exit to 272nd St./Covington | |
| 018 | INC | RS | 12.74 | 13.72 | Exit to Se 256th St. | |
| 018 | INC | RS | 15.43 | 16.10 | Exit 231st. St./Maple Valley | |
| 018 | INC | RS | 2.48B | 1.13 | Multiple Ramps | |
| 018 | DEC | RS | 1.11 | 2.59B | Multiple Ramps | |
| 018 | DEC | RS | 4.36 | 2.32 | Multiple Ramps | |
| 018 | DEC | RS | 6.20 | 6.19 | Pumpkin Patch | Wetland Mitigation Site |
| 018 | DEC | RS | 6.48 | 5.83 | Exit to Auburn/Black Diamond Rd. | |
| 018 | DEC | RS | 6.50 | 6.51 | Green River | Wetland Mitigation Site |
| 018 | DEC | RS | 8.70 | 8.69 | Frog Pond | Wetland Mitigation Site |
| 018 | DEC | RS | 9.12 | 8.19 | Exit 304th St. | |
| 018 | DEC | RS | 10.73 | 10.72 | Kendal 1 | Wetland Mitigation Site |
| 018 | DEC | RS | 11.75 | 10.93 | Exit SE 272nd St. | |
| 018 | DEC | RS | 13.53 | 12.78 | Exit SE 256th St. | |
| 018 | DEC | RS | 16.07 | 15.16 | Exit 231st. St./Maple Valley | |
| 018 | Both | RS | 2.20B | 0.00 | City of Federal Way | Maintain by city |

# *Appendix F* *Special Maintenance Areas*

***Definitions:***

*Locations are distinguished between opposing sides of the highway by right shoulder (RS) and median shoulder (LS) in relation to direction of travel, indicated by increasing (INC) or decreasing (DEC) mile markers.*

*Descriptions - Brief explanation of special treatment required*

| SR | Direction | Shoulder | BEG MP | END MP | Type | Description |
|---|---|---|---|---|---|---|
| 018 | | | 14.60 | | Was Road Pit Site | |
| 099 | Both | RS | 6.15 | 12.15 | City of Federal Way | Maintain by city |
| 099 | Both | RS | 12.92 | 20.38 | City of Federal Way | Maintain by city |
| 123 | Both | RS | 7.50 | 16.33 | Mount Rainier National Park | Maintained by park |
| 161 | Both | RS | 32.55 | 32.94 | City of Milton | Maintain by city |
| 161 | Both | RS | 34.20 | 35.00 | City of Federal Way | Maintain by city |
| 164 | Both | RS | 0.31 | 4.71 | City of Auburn | Maintain by city |
| 164 | Both | RS | 4.70 | 5.13 | Muckleshoot Indian Reservation | |
| 164 | Both | RS | 6.31 | 8.62 | Muckleshoot Indian Reservation | |
| 164 | Both | RS | 13.57 | 15.13 | City of Enumclaw | Maintain by city |
| 167 | INC | RS | 12.00 | 12.70 | Exit to Algona/Pacific | |
| 167 | INC | RS | 13.59 | 15.05 | Multiple Ramps | |
| 167 | INC | RS | 15.48 | 16.21 | Exit 15th St. NW | |
| 167 | INC | RS | 17.67 | 18.25 | Exit S 277th St. | |
| 167 | INC | RS | 19.39 | 19.96 | Exit Willis St./Des Moines | |
| 167 | INC | RS | 21.11 | 21.80 | Exit 84th Ave. S | |
| 167 | INC | RS | 22.07 | 22.60 | Exit S. 212th St. | |
| 167 | INC | RS | 24.13 | 24.79 | Exit S. 180th St. | |
| 167 | INC | RS | 25.84 | 26.48 | Exit to SR 405 | |
| 167 | DEC | RS | 12.61 | 11.88 | Exit to Algona/Pacific | |
| 167 | DEC | RS | 14.12 | 14.11 | Mill Creek Stage 1A | Wetland Mitigation Site |
| 167 | DEC | RS | 14.87 | 13.41 | Multiple Ramps | |
| 167 | DEC | RS | 15.26 | 15.25 | Mill Creek Stage 1A | Wetland Mitigation Site |
| 167 | DEC | RS | 16.03 | 15.42 | Exit to 15th St. NW | |
| 167 | DEC | RS | 18.13 | 17.47 | Exit S. 277th St. | |
| 167 | DEC | RS | 19.88 | 19.26 | Exit to Willis St./Des Moines | |
| 167 | DEC | RS | 21.63 | 21.08 | Exit to 84th Ave. S | |
| 167 | DEC | RS | 22.62 | 21.90 | Exit to S. 212th St. | |
| 167 | DEC | RS | 24.73 | 24.42 | Exit to S. 180th St. | |
| 167 | DEC | RS | 26.41 | 25.92 | Exit to SR 405 | |
| 169 | DEC | RS | 19.57 | 19.58 | Ceder River | Wetland Mitigation Site |
| 169 | Both | RS | 0.00 | 0.85 | City of Enumclaw | Maintain by city |
| 169 | Both | RS | 5.07 | 5.63 | Green River Gorge State Park | |
| 169 | Both | RS | 6.75 | 9.09 | City of Black Diamond | Maintain by city |
| 169 | Both | RS | 10.10 | 14.12 | City of Maple Valley | Maintain by city |
| 169 | Both | RS | 23.36 | 25.26 | City of Renton | Maintain by city |
| 169 | | | 4.30 | | Kummer Stockpile Site | |

***Definitions:***

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*Descriptions - Brief explanation of special treatment required*

| SR | Direction | Shoulder | BEG MP | END MP | Type | Description |
|---|---|---|---|---|---|---|
| 181 | Both | RS | 5.32 | 9.75 | City of Kent | Maintain by city |
| 181 | Both | RS | 9.75 | 11.37 | City of Tukwila | Maintain by city |
| 405 | INC | RS | 0.14 | 1.16 | Multiple Ramps | |
| 405 | INC | RS | 0.28 | 0.29 | Towards SR 167 Tukwila | Wetland Mitigation Site |
| 405 | INC | RS | 1.94 | 2.79 | Exit to Renton/Auburn | |
| 405 | INC | RS | 3.67 | 4.97 | Exit to SR 169 | |
| 405 | INC | RS | 5.21 | 5.90 | Exit 5 - Sunset Blvd | |
| 405 | INC | RS | 6.34 | 7.05 | Exit 6 - NE 30th St. | |
| 405 | INC | RS | 7.21 | 7.71 | Exit 7 - NE 44th St. | |
| 405 | INC | RS | 8.99 | 9.62 | Exit 9 - 112th Ave. SE | |
| 405 | INC | RS | 10.01 | 10.49 | Exit 10 - Coal Creek Pkwy | |
| 405 | DEC | RS | 0.43 | 0.04 | Exit - to SR 005 | |
| 405 | DEC | RS | 1.03 | 0.58 | Exit 1 - Tukwila/W. Valley Hwy. | |
| 405 | DEC | RS | 2.79 | 1.79 | Multiple Ramps | |
| 405 | DEC | RS | 3.99 | 3.68 | On Ramp | |
| 405 | DEC | RS | 4.80 | 4.56 | Exit 4 - Renton/Enumclaw | |
| 405 | DEC | RS | 5.72 | 4.91 | Exit 5 - Park Ave N. | |
| 405 | DEC | RS | 6.72 | 6.19 | Exit 6 - NE 30th St. | |
| 405 | DEC | RS | 7.70 | 6.94 | Exit 7 - NE 44th St. | |
| 405 | DEC | RS | 9.45 | 8.95 | Exit 9 - 112th Ave. SE | |
| 405 | DEC | RS | 10.49 | 9.89 | Exit 10 - Coal Creek Pkwy | |
| 410 | INC | RS | 23.22 | 23.23 | Boise Creek 2 | Wetland Mitigation Site |
| 410 | Both | RS | 22.77 | 22.94 | City of Enumclaw | Maintain by city |
| 410 | Both | RS | 23.07 | 25.71 | City of Enumclaw | Maintain by city |
| 410 | Both | RS | 47.57 | 57.64 | Mt. Baker/Snoq. National Forest | |
| 410 | Both | RS | 57.64 | 69.22 | Mount Rainier National Park | Maintained by park |
| 410 | | | 22.00 | | Buckley Stockpile Site | |
| 410 | | | 37.05 | | Unnamed Quarry Site | |
| 410 | | | 42.30 | | Unnamed Pit Site | |
| 410 | | | 59.20 | | Foothill Cr. Stockpile Site | |
| 509 | INC | RS | 23.78 | 24.18 | On Ramp | |
| 509 | INC | RS | 24.52 | 25.06 | Exit 160th St. | |
| 509 | INC | RS | 25.40 | 25.60 | Exit to SR 005 | |
| 509 | INC | RS | 24.37B | 23.68 | On Ramp | |
| 509 | DEC | RS | 24.04 | 23.73 | Ramp to Restricted Area | |
| 509 | DEC | RS | 25.07 | 24.40 | Exit to S. 160th ST. | |
| 509 | DEC | RS | 25.57 | 25.27 | On Ramp | |
| 509 | DEC | RS | 24.64B | 24.35B | Exit to Normandy Park | |

***Definitions:***

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*Descriptions - Brief explanation of special treatment required*

| SR | Direction | Shoulder | BEG MP | END MP | Type | Description |
|---|---|---|---|---|---|---|
| 509 | Both | RS | 5.70 | 5.81 | City of Tacoma | Maintain by city |
| 509 | Both | RS | 5.75 | 7.85 | Puyallup Indian Reservation | |
| 509 | Both | RS | 7.85 | 14.29 | City of Federal Way | Maintain by city |
| 509 | Both | RS | 7.85 | 8.41 | Dash Point State Park | |
| 509 | Both | RS | 19.62 | 20.45 | City of Des Moines | Maintain by city |
| 509 | Both | RS | 20.47 | 20.75 | City of Des Moines | Maintain by city |
| 509 | Both | RS | 20.75 | 23.47 | City of Normandy Park | Maintain by city |
| 509 | Both | RS | 23.47 | 24.29B | City of Burien | Maintain by city |
| 509 | Both | RS | 24.45 | 25.56 | City of Burien | Maintain by city |
| 509 | Both | RS | 24.29B | 24.45 | City of SeaTac | Maintain by city |
| 515 | Both | RS | 0.00 | 1.27 | City of Kent | Maintain by city |
| 515 | Both | RS | 5.73 | 7.82 | City of Renton | Maintain by city |
| 516 | DEC | RS | 10.93 | 10.92 | Big Soos Creek | Wetland Mitigation Site |
| 516 | DEC | RS | 10.99 | 10.98 | Bartol | Wetland Mitigation Site |
| 516 | Both | RS | 0.00 | 1.56 | City of Des Moines | Maintain by city |
| 516 | Both | RS | 1.56 | 2.34 | City of Kent | Maintain by city |
| 516 | Both | RS | 2.52 | 3.77 | City of Kent | Maintain by city |
| 516 | Both | RS | 4.35 | 11.13 | City of Kent | Maintain by city |
| 516 | Both | RS | 11.13 | 12.32 | City of Covington | Maintain by city |
| 516 | Both | RS | 14.42 | 16.22 | City of Maple Valley | Maintain by city |
| 516 | | | 12.90 | | Unnamed Pit Site | |
| 518 | INC | RS | 0.06 | 0.32 | On Ramp | |
| 518 | INC | RS | 0.65 | 0.93 | On Ramp | |
| 518 | INC | RS | 1.39 | 2.86 | Multiple Ramps | |
| 518 | INC | RS | 3.36 | 3.53 | Exit - to 51st. Ave. SE | |
| 518 | INC | RS | 3.67 | 3.81 | Ramp to SR 005 | |
| 518 | DEC | RS | 0.18 | 0.03 | Exit to SR 509 | |
| 518 | DEC | RS | 0.92 | 0.66 | Exit to Des Moines Memorial Dr. | |
| 518 | DEC | RS | 2.89 | 1.34 | Exit to SeaTac | |
| 518 | DEC | RS | 3.81 | 3.20 | Multiple Ramps | |
| 900 | INC | RS | 5.98 | 6.13 | Ramp to SR 005 Northbound | |
| 900 | INC | RS | 6.48 | 6.59 | Ramp to SR 005 Soundbound | |
| 900 | INC | RS | 17.44 | 17.45 | SR 900 Junction, NE May V. Rd | Wetland Mitigation Site |
| 900 | Both | RS | 5.93 | 6.83 | City of Tukwila | Maintain by city |
| 900 | Both | RS | 6.83 | 6.98 | City of Seattle | Maintain by city |
| 900 | Both | RS | 8.48 | 14.73 | City of Renton | Maintain by city |
| 900 | Both | RS | 19.64 | 21.33 | City of Issaquah | Maintain by city |

**Washington State Department of Transportation**

# Integrated Vegetation Management Record

| Org. Code | County | Date | | Vegetation Management Zone(s) |
|---|---|---|---|---|
| 435420 | Grays Harbor | 8/7/2006 | | ☒ Zone 1 ☒ Zone 2 ☐ Zone 3 |

Area: SR 101 MP 104 to MP 137 Location:

Check Appropriate Boxes: ☒ NB ☐ EB ☒ SB ☐ WB ☒ Roadside ☒ Shoulder ☐ Median ☐ Landscaped Area ☐ Rest Area ☐ Park-n-Ride ☐ Interchange ☐ Bridge ☐ Ramp ☐ Mitigation Site ☐ Stormwater ☐ Yard/Stockpile Third Party Damage: ☐ Yes Sensitive Sites: ☐ Aquatic ☐ Wetlands

Target: ☒ Noxious Weeds ☐ Nuisance Weeds ☐ Brush/Trees ☐ Hazard Tree ☐ Other

List Target/Species: Orange Hawkweed

Reason for Action:
☒ Noxious Weeds ☐ Nuisance Weeds ☐ Fire Prevention ☐ Restore Native Veg. ☐ Zone 1 Pilot ☐ Aesthetic
☐ Site Distance ☐ Hazard Vegetation ☐ Customer Request ☐ Enhance Vegetation ☐ Slope Stabilization ☐ Other

Long term IVM plan (Describe goals/objectives and a step-by-step approach over time)

To control and eradicate this weed from zones 1 & 2.This was the first treatment this year but we are seeing good results from the previuos treatments from the year before.

Approximate Acres to Accomplish: 1.5

| Activities | | Planned date of Treatment | Actual date of Treatment |
|---|---|---|---|
| Manual | ☐ Digging ☐ Pulling ☐ Planting ☐ Lopping ☐ Scalping ☐ Other | | |
| Mechanical | ☐ Aerial Saw Work ☐ Tractor Brush Cutter ☐ Mower/Chain ☐ Manual Brush Cutting ☐ Tractor Mower ☐ Other | | |
| Bio-Control | ☐ Insects ☐ Pathogens ☐ Parasites Type/Species | | |
| Cultural | ☐ Burning ☐ Grading ☐ Seeding ☐ Fertilizing ☐ Grazing ☐ Soil Amendment ☐ Other | | |
| Chemical | 3119456 Record Number | | 8/7/2006 |

**#1 Evaluation and Date**

**#2 Evaluation and Date**

**#3 Evaluation and Date**


## Pesticide Application

Main Menu | Print | New Record | Form 8420 | List View | Blank Record | Delete Record | Find Record

| Org. Code | County | Date of Application | Start / Finish | ICP | Stores Issue Ticket Number(s) |
|---|---|---|---|---|---|
| 415520 | King | 10/13/2006 | Start 12:30 ○ AM ◉ PM<br>Finish 14:00 ○ AM ◉ PM | 051A | F42735/F42733/42734 |

Area
SR 99 MP 25.12 to MP 26.01 and MP _____ to MP _____ and MP _____ to MP _____ and MP _____ to MP _____

Check Appropriate Boxes
☒ NB ☐ EB ☐ WB ☒ SB
☐ Roadside ☒ Shoulder ☐ Median ☐ Landscaped Area ☐ Rest Area ☐ Park-n-Ride ☐ Interchange ☐ Bridge ☐ Ramp ☐ Yard/Stockpile
☒ Spot Spray ☒ Blanket Spray ☐ Banded Width ☐ Aquatic ☐ Wetlands

☐ Weeds ☒ Noxious Weeds ☐ Disease
☐ Brush ☐ Insects ☐ Other List Pest(s): Common Reed grass, Japanese knotweed, Blackberries

Start Weather Conditions
Temperature 54 °F(°C) Wind (Direction From) NW Wind (Range) 2 mph(km/h)
○ Sunny ◉ Broken ○ Overcast No Rain ○ Light Scattered Showers ○ Hard Showers

Finish Weather Conditions
Temperature 60 °F(°C) Wind (Direction From) NW Wind (Range) 4 mph(km/h)
◉ Sunny ○ Broken ○ Overcast No Rain ○ Light Scattered Showers ○ Hard Showers

| Tank No. | Material Name | Material Type | EPA Reg. No. | Lot Number | Product Per Acre (hectare) | Unit | Total Daily Usage | Unit |
|---|---|---|---|---|---|---|---|---|
| 1 | Water | Carrier | ---------- | Spokane St. | 100 | Gal | 50 | Gal |
| 1 | Aquamaster | Pesticide | 524-343 | MTR00805AJ | 96 | Ozl | 48 | Ozl |
| 1 | MSO | Adjuvant | ---------- | 77562 | 32 | Ozl | 16 | Ozl |
| 1 | Turf Trax | Adjuvant | ---------- | 34294 | 32 | Ozl | 16 | Ozl |
| | | | | | | | | |
| | | | | | | | | |
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| | | | | | | | | |
| | | | | | | | | |

**Total** 0.50 **Acres(hectares) Treated at** 100 **gallons(liters) of spray per acre(hectare).**

| Equipment Number | Tank Size | Calibration Date | Vehicle Speed | Nozzle Pressure | Width of Spray Pattern |
|---|---|---|---|---|---|
| 21A36-5 | 1 200 2 ____ 3 ____ 4 ____ 5 ____ | 09/25/2006 | n/a mph(km/h) | 5 PSI(kPa) | N/A Feet(meter) |

☐ Handspreader ☐ Backpack ☒ Handgun ☐ Fixed Nozzle ☐ Boom ☐ Other (Specify) ☒ Tank Mix (Conv.) ☐ Injection ☐ Invert

| Operator Name | Operator Pesticide License No. | Operator Signature | Driver Name |
|---|---|---|---|
| Gabriel Olivas | 52698 | | Richar Blair |

Remarks
No water was present at the time of spray.

Buffer Truck Driver's Name

Pesticide Sensitivity Registration Applies: ☐ Yes ☒ No

Contact

**Division of Emergency Management (1-800-258-5990)** Additional Notes

DOT Form 540-506 EF Revised 9/2001 Distribution: OIC Maint. Operator Region File *Send OSC Copy Within 5 Days*

Osl= Ounces Dry Lb= Pound Osl= Ounces Liquid Ga= Gallon Pt=Pint Qt= Quart g= gram kg=kilogram ml=Milliliter L= Liter

| Entity | Mailing Address | Contact Person | Title | Phone | E-Mail |
|---|---|---|---|---|---|
| City of Renton | 1055 S. Grady Way Renton, WA 98057 | Gregg Zimmerman | Public Works Administrator | (425) 430-6400 | |
| City of Burien | 15811 Ambaum Blvd. SW Burien, WA 98166 | Stephen Clark | Public Works Director | (206) 248-5521 | Stephenc@burienwa.gov |
| City of Normandy Park | 801 SW 174th St. Normandy Park, WA 98166 | Karl Franta | Public Works Operations | (206) 248-7603 Fax (206)248-8266 | karlf@ci.normandy-park.wa.us |
| City of Des Moines | 216501 11th Ave. South Des Moines, WA 98198 | Grant Fredricks | Public Works Director | (206) 870-7576 | fredricksg@desmoineswa.gov |
| City of Kent | 400 W. Gowe St. Kent, WA 98032 | | | (253) 865-5500 | publicworks@ci.kent.wa.us |
| City of Auburn | 1305 C Street SW Auburn, WA 98001 | Randy Bailey | M&O Manager | (253) 931-3059 Fax (253) 288-7406 | rbailey@auburnwa.gov |
| City of Black Diamond | 25510 Lawson Black Diamond, WA 98010 | Jason Paulson | City Administrator | (360) 886-2560 | |
| City of Enumclaw | 1309 Myrtle Ave. Enumclaw, WA 98022 | Chris Searcy | Public Works Director | (360) 615-5721 | chrissearcy@ci.enumclaw.wa.us |
| City of Covington | 16720 SE 271 St., Suite 100, Covington, WA 98042 | David Delph | Public Works Director | (253) 638-1110 Ext. 2250 | ddelph@ci.covington.wa.us |
| City of Maple Valley | 22035 SE Wax rd, Suite 5 Maple Valley, WA 98038 | Nick Afzali | Public Works Director | (425) 413-880 Fax (425) 413-4282 | nick.afzali@ci.maple-valley.wa.us |
| City of Federal Way | 33325 8th Ave S. Federal Way, WA 98063 | Cary M Roe | Public Works Director | (253) 835-2701 Fax (253) 835-2709 | cary.roe@cityoffederalway.com |
| City of Sea Tac | | | Maintenance Division | (206) 973-4770 | |
| City of Tukwila | 6300 Southcenter Blvd. Tukwila, WA 98188 | Jim Morrow | Public Works Director | (206) 433-0179 | tukpweng@ci.tukwila.wa.us |
| King County | 201 St. Jackson St., Suite 600, Seattle, WA 98104 | Steve Burke | County Noxious Weed Coordinator | (206) 205-6927 Fax (206) 296-0192 | steve-j.burke@metroke.gov |
| Pierce County | 1420 E 112th St. Tacoma, WA 98445 | Sean McDougal | County Noxious Weed Coordinator | (253) 798-7263 Fax (253) 798-3272 | smacdougal@co.pierce.wa.us |
| Mount Rainier National Park | 55210 238th Ave. East Ashford, WA 98304 | | Park Superintend | (360) 569-2211 Fax (360) 569-2170 | |
| Mt. Baker-Snoqualmie National Forest | 450 Roosevelt Ave. E Enumclaw, WA 98022 | Jim Franzel | District Ranger | (360) 825-6585 | |
| Muckleshoot Indian Reservation | 17500 SE 392nd St. Auburn, WA 98092 | Health Dept. | | (253) 939-6648 | |